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Search Results -

Term	Documents
ELECTRET.DWPI,TDBD,EPAB,JPAB.	2809
ELECTRETS.DWPI,TDBD,EPAB,JPAB.	300
HYDROCHARG$4	0
HYDROCHARGED.DWPI,TDBD,EPAB,JPAB.	1
HYDROCHARGING.DWPI,TDBD,EPAB,JPAB.	1
(HYDROCHARG$4 AND ELECTRET).JPAB,EPAB,DWPI,TDBD.	1

Database:
US Patents Full-Text Database
US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
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IBM Technical Disclosure Bulletins

Refine Search: electret and (hydrocharg$4) Clear

Search History

Today's Date: 4/3/2001

DB Name	Query	Hit Count	Set Name
JPAB,EPAB,DWPI,TDBD	electret and (hydrocharg$4)	1	L6
USPT,PGPB	electret and (hydrocharg$4)	15	L5
USPT,PGPB	electret same (water or H2O)	128	L4
JPAB,EPAB,DWPI,TDBD	L2 and (water or H2O)	7	L3
JPAB,EPAB,DWPI,TDBD	electret and (condens$6 or vapor)	171	L2
USPT,PGPB	electret and (condens$6) and dry$4	86	L1

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Search Results -

Term	Documents
ELECTRET.DWPI,TDBD,EPAB,JPAB.	2809
ELECTRETS.DWPI,TDBD,EPAB,JPAB.	300
CONDENS$5	0
CONDENS.DWPI,TDBD,EPAB,JPAB.	713
CONDENSA.DWPI,TDBD,EPAB,JPAB.	93
CONDENSAB.DWPI,TDBD,EPAB,JPAB.	18
CONDENSABL.DWPI,TDBD,EPAB,JPAB.	11
CONDENSABLE.DWPI,TDBD,EPAB,JPAB.	2664
CONDENSABLEE.DWPI,TDBD,EPAB,JPAB.	1
CONDENSABLES.DWPI,TDBD,EPAB,JPAB.	108
(ELECTRET AND (CONDENS$5)).JPAB,EPAB,DWPI,TDBD.	133

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Database:
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Derwent World Patents Index
IBM Technical Disclosure Bulletins

Refine Search: electret and (condens$5) Clear

Search History

Today's Date: 4/3/2001

DB Name	Query	Hit Count	Set Name
JPAB,EPAB,DWPI,TDBD	electret and (condens$5)	133	L6
JPAB,EPAB,DWPI,TDBD	electret and (condens$5) and (dry$4)	0	L5
JPAB,EPAB,DWPI,TDBD	electret and (condens$5) and (dry$4) and (vapor or vapour)	0	L4
USPT,PGPB	electret and (condens$5) and (dry$4) and (vapor or vapour)	40	L3
USPT	6119691	1	L2
USPT	6068799	2	L1

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L2      2923250 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (VAPOR OR VAPOUR OR LIQUID?
                OR WATER OR FLUROCARBON? OR AQUEOUS?)
L3         2917 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?ELECTRET?
L4          187 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3(S)L2
L5            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CONDEN? (L) L4
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=> d max 1-

YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y

L5 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2001 ACS
AN 1989:600748 HCAPLUS
DN 111:200748
TI Reducing the hazard of dust explosions: agglomerate the fines, cool off the hot spots, collect the fines at the point of origin, neutralize local electrostatic charges
AU Hoenig, Stuart A.
CS Dep. Electr. Comput. Eng., Univ. Arizona, Tucson, AZ, 85721, USA
SO Plant/Oper. Prog. (1989), 8(3), 119-28
CODEN: POPPDE; ISSN: 0278-4513
DT Journal; General Review
LA English
CC 59-0 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 48
AB A review, with 4 refs., on preventing dust explosions, including the removal of floating dust by filtration, cyclones, **water** fogging, electrostatic **water** fogging, dry electrostatic charging and collection, and **electrets**, as well as the use of dry ice snow, which reduces the temp. of the combustible materials or hot spots, induces local **condensation** of **water** to help wet the dust, and excludes the O necessary for combustion.
ST review dust explosion prevention; safety dust explosion prevention review
IT Explosion
(of airborne dust, prevention of)
IT Dust
(airborne, explosions of, prevention of)

L5 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2001 ACS
AN 1986:517196 HCAPLUS
DN 105:117196
TI Condensation-nucleus counter. An old measuring method from a modern viewpoint
AU Haller, P.; Hofmann, M.
CS Gruppe Ruestungsdienste, AC-Lab. Spiez, Spiez, CH-3700, Switz.
SO Swiss Chem (1986), 8(6), 25-7
CODEN: SCHEDQ; ISSN: 0251-1703
DT Journal
LA German
CC 48-1 (Unit Operations and Processes)
Section cross-reference(s): 59
AB **Condensation** nucleus or dust particle counters are based on a satn. chamber with various fluids, such as BuOH, a cooling chamber for drop formation (av. size .apprx.10 .mu.), and a photodetector. The aerosol contains dust particles of 0.005-1 .mu. diam. The quality of the filter materials, used for air cleaning, is the exponent of P = P1 .times. vx, where P and P1 are the penetration at a selected velocity and 1 cm/s, resp., and v is the flow velocity. For particle diams. of 109, 125, 176, and 220 nm the abs. and relative permeation data are tabulated as functions of the velocity. The 5 filters were Grade 10, 100/1, 100/z, Irosa, and **Electret** and the test aerosols Latex (laser particle counter), PtOx (25 nm), lab. air, and residual **water** nuclei.

The penetration in 10-6 was 5, <300, <100, and 400 for the 1st 4 filters using the dioctyl phthalate test.

ST condensation nucleus counter; filtration air testing

IT Air conditioning
(filtration, testing of, condensation-nucleus counter in)

L5 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2001 ACS

AN 1983:532144 HCAPLUS

DN 99:132144

TI The **electret** effect in **water vapor condensates** and phase transformation in ice

AU Chrzanowski, J.; Sujak, B.

CS Inst. Exp. Phys., Univ. Wroclaw, Wroclaw, 50-205, Pol.

SO Acta Phys. Pol. A (1983), A64(1), 107-13
CODEN: ATPLB6; ISSN: 0587-4246

DT Journal

LA English

CC 76-9 (Electric Phenomena)

AB A correlation between the known phase transformations of ice cryocondensates and the generation of surface charges during condensation process of water vapor onto a cold substrate is discussed. The main source of the obsd. electret effect is apparently a low-temp. polarization process of the mol. dipoles. Local changes of the dielec. permittivity assocd. with the 1st-order phase transformations may affect the exptl. obsd. electret effect.

ST electret effect ice; phase transformation ice; water vapor condensation surface charge

IT Electrets
(ice cryogenic condensates, surface charge generation in relation to)

IT Dielectric constant and dispersion
Dielectric polarization
(of ice, cryogenic electret effect in relation to)

IT Electric charge
(surface, generation of, on ice during condensation, electret effect in relation to)

IT 7732-18-5, ice
RL: USES (Uses)
(electret effect during phase transformations of, at cryogenic temp., surface-charge generation in relation to)

L5 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2001 ACS

AN 1983:506907 HCAPLUS

DN 99:106907

TI Electrets

IN Beach, William F.; Mahoney, Dennis M.

PA Union Carbide Corp. , USA

SO Can., 11 pp.
CODEN: CAXXA4

DT Patent

LA English

IC C08F002-52; C08J003-28

CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CA 1146907	A1	19830524	CA 1980-359570	19800904
				US 1979-72302	19790904

AB Polymer **electrets** are prepd. by providing two electrodes in a deposition zone which was connected to an external voltage source, providing a dipolar substituted p-xylylene monomer **vapor** to coat the opposing surface of the electrodes, activating the power source, **condensing** the monomer **vapor** on the electrodes, and polymg. to form **electrets**. Thus, a 500-.ANG.-thick layer of Al was deposited on one side of each of 2 glass slides. A 1000-.ANG.-thick layer of Au was deposited on top of the Al on each slide. These slides were placed parallel to each other in a parylene deposition chamber. The

holder was elec. conductive and was connected to an external power source. One of the Au layers was connected to the pos. side of the holder and the other Au layer to the neg. side of the holder. Cyclic dichloro-di-p-xylylene (25 g) was sublimed and introduced into the deposition chamber to form .apprx.8-.mu.-thick films on each Au electrode. Au and black Au dots (1-cm-diam. and .apprx.1000-.ANG.-thick, black Au slightly thicker) were vaporized on the film surface. The Au coated film had a pyroelec. response of 1.5 nA/W/cm2 of incident radiation.

ST parylene coating gold electret; chloroxylylene polymn coating gold electrode; pyroelec response parylene electret

IT Coating materials
(dipolar substituted p-xylylene polymers, for gold electrodes)

IT Electric insulators and Dielectrics
(coatings, dipolar substituted p-xylylene polymers, for gold electrodes)

IT 9055-86-1
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings, for gold electrodes)

IT 7440-57-5, uses and miscellaneous
RL: USES (Uses)
(electrodes, dipolar substituted p-xylylene polymers and aluminum contg., for electrets)

IT 7429-90-5, uses and miscellaneous
RL: USES (Uses)
(gold electrodes contg., dipolar substituted p-xylene polymers coating on, for electrets)

L5 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2001 ACS
AN 1972:141982 HCAPLUS
DN 76:141982
TI Maaking polypropylene electrets
IN Kodera, Yoichi; Kitamura, Tomosaburo; Sawaguchi, Etsuro
PA Sony Corp.
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
IC C23C
NCL 117227000
CC 37 (Plastics Fabrication and Uses)
Section cross-reference(s): 71
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3632443	A	19720104	US 1969-817348	19690418
				JP 1968-28366	19680427
	NL 6906413	A	19691029	NL 1969-6413	19690425
				JP 1968-28366	19680427
	GB 1258638	A	19711230	GB 1969-1258638	19690425
				JP 1968-28366	19680427
	FR 2007144	A5	19700102	FR 1969-13470	19690428
				JP 1968-28366	19680427

AB An electret with a high mol. resistivity and low hydroscopicity was prepd. from permanently elec. polarized polypropylene (I) [9003-07-0]. Thin I films, optionally **vapor** deposited with Al or Pd on one surface, were exposed to 50-600 V between 2 electrodes at 65-120.deg. to give **electrets** used in conversion devices e.g. a **condenser** microphone.

ST polypropylene electret; shelf life polypropylene electret

IT Electrets
(propene polymer, for conversion devices)

IT 9003-07-0
RL: USES (Uses)
(electrets, for conversion devices)

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L2       2923250 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (VAPOR OR VAPOUR OR LIQUID?
                 OR WATER OR FLUROCARBON? OR AQUEOUS?)
L3          2917 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?ELECTRET?
L4           187 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3(S)L2
L5             5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  CONDEN? (L) L4
L15          774 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND (DIELECTRIC OR
                 PERSIST? ELECTRIC? OR CONSTANT?(1A)CHARGE?)
L16          766 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND DIELECTRIC
L17       378623 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?CONDEN?
L18           18 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 AND L17
L19           16 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18 NOT L5
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=> d max 1-
YOU HAVE REQUESTED DATA FROM 16 ANSWERS - CONTINUE? Y/(N):y

L19 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1997:316613 HCAPLUS
DN 126:344048
TI More data about **dielectric** and **electret** properties of poly(methyl methacrylate)
AU Mazur, Karol
CS Department of Physics, Technical University, Zielona Gora, 65-246, Pol.
SO J. Phys. D: Appl. Phys. (1997), 30(9), 1383-1398
CODEN: JPAPBE; ISSN: 0022-3727
PB Institute of Physics Publishing
DT Journal
LA English
CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 76
AB The probe technique and thermally stimulated discharge (TSD) method were used to det. the potential distribution [Vx] in poly(Me methacrylate) (PMMA) **thermoelectrets** polarized at temps. Tp below the glass transition temp. Tg. Current-voltage (j-V) characteristics were obtained of PMMA at temps. Tp < Tg, on the basis of the Vx distribution and some theor. considerations. The j-V characteristic is of sub-ohmic shape, namely j = gVn, where n < 1 and g = const. On the basis of the above relation, a two-layer **condenser** (PMMA with one side metalized and an air gap) was considered as a model for the formation of PMMA **thermoelectrets**. The interfacial charge d. changed nonlinearly with applied polarizing voltage (Vp). The theor. results were compared with exptl. data of PMMA **thermoelectrets**. The problems of mean real charge depth and charge decay in these **electrets** were considered. The isothermal absorption current, j-V, and, charge decay after poling of PMMA and of a PMMA/BaTiO3 composite are interrelated.
ST polymethylmethacrylate **thermoelectret** charge decay; barium titanate PMMA composite **thermoelectret** poling
IT Electric insulators
Glass transition temperature
(**dielec**. and **electret** properties of PMMA and BaTiO3/PMMA **thermoelectrets**)
IT **Electrets**
(**thermoelectrets**; **dielec**. and **electret** properties of PMMA and BaTiO3/PMMA **thermoelectrets**)
IT 9011-14-7, PMMA 12047-27-7, Barium titanate (BaTiO3), properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**dielec**. and **electret** properties of PMMA and BaTiO3/PMMA **thermoelectrets**)

L19 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1986:627766 HCAPLUS
DN 105:227766
TI Current-voltage characteristic and relation between surface charge density

of PMMA **thermoelectrets** and polarizing voltage
AU Mazur, Karol
CS Dep. Phys., Coll. Eng., Zielona Gora, PL-65246, Pol.
SO Proc. - Int. Symp. Electrets, 5th (1985), 271-6. Editor(s): Sessler, Gerhard Martin; Gerhard-Multhaupt, Reimund. Publisher: IEEE, Piscataway, N. J.
CODEN: 55FVAI
DT Conference
LA English
CC 37-5 (Plastics Manufacture and Processing)
AB A 2-layered **condenser** [poly(Me methacrylate) (I) [9011-14-7] 1-sided metalized and air-gap] was considered as the formation model for I **thermoelectrets**. This model indicated that the interfacial charge d. changes nonlinearly with the applied voltage. Using both the electrostatic and thermally stimulated current methods and utilizing the simplest boundary conditions, the induction charge d. could be roughly sepd. into dipolar and real charge d.
ST charge density polymethyl methacrylate **electret**; polarizing voltage polymethyl methacrylate **electret**
IT **Dielectric** polarization
(in poly(Me methacrylate) **thermoelectrets**, surface charge d. in relation to)
IT **Electrets**
(thermo-, poly(Me methacrylate), surface charge of, polarizing voltage effect on)
IT 9011-14-7
RL: PRP (Properties)
(**thermoelectrets**, surface charge d. of, polarizing voltage effect on)

L19 ANSWER 3 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1986:563153 HCAPLUS
DN 105:163153
TI Influence of the hydroxyl group rotations on the natural **electret** effect (spontaneous dipole polarization) in methyl alcohol cryodeposits
AU Chrzanowski, Janusz; Dransfeld, Klaus
CS Fac. Phys., Univ. Konstanz, Konstanz, D-7750, Fed. Rep. Ger.
SO Proc. - Int. Symp. Electrets, 5th (1985), 393-8. Editor(s): Sessler, Gerhard Martin; Gerhard-Multhaupt, Reimund. Publisher: IEEE, Piscataway, N. J.
CODEN: 55FVAI
DT Conference
LA English
CC 76-9 (Electric Phenomena)
AB The generation of the elec. polarization in MeOH **cryocondensates** was investigated during deposition of the layer on a cold substrate of temp. within the range 90-175 K. An elec. polarization only appears in the .alpha.-phase, below .apprx.158 K, but none at all in the .beta.-phase above 158 K. The complete absence of a polarization effect above 158 K is probably related to the onset of free rotations of the OH group at 158 K, the temp. of the .lambda.-phase transformation. Films of the .alpha.-MeOH that grow below T.lambda. are of high cryst. order. Also, the increase of the surface charge d. obsd. on lowering the **condensation** temp. may be caused by an increasing orientation of the fully polarized microcrystallites below T.lambda..
ST **electret** effect methyl alc; dipole polarization methanol
IT **Dielectric** polarization
(**electret** effect, in Me alc. cryodeposits, influence of hydroxyl-group rotations on)
IT 67-56-1, properties
RL: PRP (Properties)
(**electret** effect in cryodeposits of, influence of hydroxyl group rotations on)

L19 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1983:558961 HCAPLUS
DN 99:158961

TI Thermally stimulated depolarization effect in thiourea-formaldehyde **condensate**
AU Nalwa, Hari Singh; Vasudevan, Padma
CS Dep. Chem., Indian Inst. Technol., New Delhi, 110016, India
SO Polymer (1983), 24(9), 1197-202
CODEN: POLMAG; ISSN: 0032-3861
DT Journal
LA English
CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36
AB A CS(NH2)2-HCHO resin [25104-08-9] was prepd. in acid soln. and characterized by elemental and thermal anal. and IR. Thermally stimulated depolarization was studied in resin polarized under various conditions. There were 2 distinct transitions at 94-100.degree. and 122-126.degree.. Polarization-depolarization was related to physicochem. changes in the matrix. Depolarization kinetics (activation energy, relaxation times) of **electrets** are reported.
ST thiourea resin depolarization thermal; **electret** thiourea resin depolarization; kinetics depolarization thiourea resin
IT **Electrets**
(in thiourea resins, thermal depolarization of, kinetics of)
IT Crosslinking
(thermal, in thiourea resins, thermally depolarization in relation to)
IT **Dielectric** depolarization
Dielectric relaxation
(thermally stimulated, in thiourea-formaldehyde resin)
IT 25104-08-9
RL: PROC (Process)
(thermally stimulated depolarization of)

L19 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1982:96061 HCAPLUS
DN 96:96061
TI Thermally stimulated currents in **condenser** polypropylene foils
AU Gubanski, A.
CS Inst. Electr. Eng. Technol., Tech. Univ. Wroclaw, Wroclaw, 50-370, Pol.
SO Mater. Sci. (1981), 7(2-3), 169-74
CODEN: MSCJDS
DT Journal
LA English
CC 76-9 (Electric Phenomena)
Section cross-reference(s): 38
AB Thermally stimulated discharge currents (TSD) from polypropylene (PP) **thermoelectrets** were studied at 150-430K. The influence of the **thermoelectret** formation parameters on the TSD spectrum was investigated. Peaks A1 (260K) and A2 (345K) were induced by dipole depolarization. The presence of peak B (350-380K) was connected with the discharge of a space charge in the sample.
ST **thermoelectret** polypropylene thermally stimulated discharge; depolarization polypropylene **thermoelectret**; space charge polypropylene **thermoelectret**
IT Space charge
(discharge of, in polypropylene foils)
IT **Dielectric** polarization
(of polypropylene foil)
IT Electric capacitors
(polypropylene, thermally stimulated currents in)
IT Electric current
(thermally stimulation, in polypropylene capacity foil)
IT **Electrets**
(thermo-, from polypropylene)
IT 9003-07-0
RL: USES (Uses)
(thermally stimulated space charge currents in thermal elecs. of)

L19 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1982:78461 HCAPLUS

DN 96:78461
TI Investigations of the organic **electrets** lifetime
AU Lowkis, B.; Motyl, E.
CS Inst. Electr. Eng. Fundam., Tech. Univ. Wroclaw, Wroclaw, 50-370, Pol.
SO Mater. Sci. (1981), 7(2-3), 251-5
CODEN: MSCJDS
DT Journal
LA English
CC 76-9 (Electric Phenomena)
Section cross-reference(s): 38
AB The lifetime of **electret** elements for **condenser** microphones was studied. The elements were made of polytetrafluoroethylene (Ftoroplast 4) and formed by the breakdown method using a **dielec**. insert. Initial charge densities of 19 nC/cm2 were obtained. The influence of the thermal annealing upon the charge relaxation parameters was investigated.
ST polytetrafluoroethylene **electret** microphone; relaxation **dielec** polytetrafluoroethylene
IT **Electrets**
(from polytetrafluoroethylene)
IT Electric discharge, chemical and physical effects
(in polytetrafluoroethylene **electret** formation)
IT **Dielectric** relaxation
(polytetrafluoroethylene)
IT Acoustic devices
(microphones, polytetrafluoroethylene **electrets** for)
IT 9002-84-0
RL: PRP (Properties)
(**electrets** from, properties of)

L19 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1980:147486 HCAPLUS
DN 92:147486
TI **Electret** polyarylates
IN Brzozowski, Zbigniew; Kielkiewicz, Jedrzej; Bukat, Krystyna
PA Politechnika Warszawska, Pol.
SO Pol., 4 pp.
CODEN: POXXA7
DT Patent
LA Polish
IC C08G063-68
CC 35-3 (Synthetic High Polymers)
Section cross-reference(s): 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	PL 101336	P	19781230	PL 1975-186163	19751230

AB Arom. **electret** polyesters are prepd. by interfacial **polycondensation** of a 20-100:100-1 mixt. of 4,4'-(2-norbornylidene)bis[phenol] (I) or 4,4'-(2-adamantylidene)bis[phenol] and 4,4'-(dichloroethenylidene)bis[phenol] (II), 4,4'-(dichloroethenylidene)bis[3,5-dichlorophenol] or 4,4'-(2,2,2-trichloroethylidene)bis[phenol] with isophthaloyl chloride (III) and terephthaloyl chloride (IV). Properties of films prepd. from polyesters contg. CCl2:C groups are improved by heating at 120-300.degree. for 1-10 h or irradn. with x-ray .gamma. or UV radiation. Thus, a copolymer [72688-39-2] was prepd. by interfacial **polycondensation** of I 0.033, II 0.009, III 0.014, and IV 0.028 mol in aq. NaOH-CH2Cl2 system at .ltoreq.20.degree. in the presence of (PhCH2)Et3N+Cl-. Transparent films of thickness 25 .mu.m cast from the copolymer had tensile strength 700-800 kg/cm, **dielec**. strength 200 kV/mm, surface elec. resistivity at 20, 100, and 150.degree. 1.6 .times. 1016, 2.0 .times. 1016, and 3.2 .times. 1016 .OMEGA., resp., **dielec**. const. (1 kHz) at 20, 100, 180, and 200.degree. 3.34, 3.23, 2.79, and 2.61, resp., and **dielec** . loss (1 kHz) at 20, 100, 150, and 180.degree. 3.0, 2.0, 3.0, and 3.3, resp.
ST **electret** polyester **dielec** property; interfacial polymn

electret polyester; polyarylate **electret** **dielec** property

IT Polyesters, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(manuf. of, from arom. bisphenols and iso- and terephthaloyl chlorides, for **electrets**)

IT **Dielectric** constant and dispersion
Dielectric loss
Dielectric strength
Electric resistance
(of **electret** polyesters)

IT **Electrets**
(polyesters for, manuf. of)

IT Polymerization
(interfacial, of arom. bisphenols with iso- and terephthaloyl chloride, for **electrets**)

IT 72688-38-1P 72688-39-2P 73347-90-7P 73347-91-8P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manuf. of, for **electrets**)

L19 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1980:129631 HCAPLUS
DN 92:129631
TI Polycarbonates with improved **electret** properties
IN Brzozowski, Zbigniew; Kaczorowski, Janusz
PA Politechnika Warszawska, Pol.
SO Pol., 3 pp.
CODEN: POXXA7
DT Patent
LA Polish
IC C08G063-62
CC 35-3 (Synthetic High Polymers)
Section cross-reference(s): 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	PL 104443	P	19790831	PL 1975-186171	19751230

AB The title polycarbonates are prepd. by interfacial **polycondensation** of gem-bisphenol derivs. of satd. polycyclic compds., e.g. 2,2-bis(4-hydroxyphenyl)norbornane (I), and/or their bis(chloroformates), with gem-bisphenol derivs. of CH_2CCl_2, e.g. 2,2-bis(4-hydroxyphenyl)-1,1-dichloroethylene (II), and/or their bis(chloroformates). The reaction is performed in the presence of quaternary ammonium, phosphonium, antimonium, or arsenium bases at a (2-1):(1-4) org.-inorg. phase ratio. Thus, to 250 mL water contg. 12 g NaOH and 27.8 g I were added 0.2 g $PhCH_2Et_3NCl$ [56-37-1] in 30 mL water, 150 mL CH_2Cl_2 (20.degree.) and, within 0.5 h, 33.4 g II in 100 mL CH_2Cl_2. After 1 h at 20.degree. the mixt. was acidified with HCl, 200 mL CH_2Cl_2 was added, the org. phase was sepd., and from it was obtained by pptn. with MeOH polycarbonate (III) [73131-71-2] in 92% yield. A 30-.mu. thick film cast from III had tensile strength 650 kg/cm, elongation at break 10-15%, **dielec**. strength 150 kV/mm, surface elec. sensitivity 9.5 .times. 1015 .OMEGA. cm (20.degree.) and 1.6 .times. 1016 .OMEGA. cm (100.degree.), bulk elec. resistivity 1.7 .times. 1016 .OMEGA. cm (20.degree.) and 2.9 .times. 1014 .OMEGA. cm (100.degree.), **dielec** . const. (1 Hz) 5.5 (20.degree.) and 5.3 (100.degree.), and **dielec** . loss (1 Hz) 4.0 (20.degree.) and 3.5 (100.degree.).

ST norbornane polycarbonate **electret**; **dielec** property polycarbonate; mech property polycarbonate; interfacial **polycondensation** polycarbonate

IT **Dielectric** constant and dispersion
Dielectric loss
Dielectric strength
Electric resistance
(of polycarbonates)

IT **Electrets**
(polycarbonates for, prepn. of)

IT Polymerization catalysts
(**condensation**, interfacial, benzyltriethylammonium chloride, for bisphenols with bisphenol bis(chloroformates))
IT Polymerization
(interfacial, of bisphenols with bisphenol chloroformates)
IT Polycarbonates
RL: PREP (Preparation)
(norbornane ring-contg., prepn. of, for **electrets**)
IT 56-37-1
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for interfacial **polycondensation** of bisphenols with bisphenol chloroformates)
IT 73131-14-3P 73131-71-2P
RL: PRP (Properties); PREP (Preparation)
(prepn. and **dielec**. and mech. properties of)
IT 73131-13-2P 73131-62-1P 73131-64-3P 73131-66-5P 73131-68-7P
73131-70-1P
RL: PREP (Preparation)
(prepn. of, for **electrets**)

L19 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1979:447953 HCAPLUS
DN 91:47953
TI Frequency dependence of **dielectric** loss in **condensed** matter
AU Ngai, K. L.; White, C. T.
CS Nav. Res. Lab., Washington, DC, USA
SO Report (1978), NRL-MR-3863; Order No. AD-A060368, 33 pp. Avail.: NTIS
From: Gov. Rep. Announce. Index (U. S.) 1979, 79(5), 237
DT Report
LA English
CC 76-3 (Electric Phenomena)
AB The **dielec**. response of **condensed** matter below microwave frequencies has been known to depart from Debye behavior, sometimes to the point of being unrecognizable, and yet the generally accepted interpretations of the departures have seldom deviated from the Debye philosophy of simple relaxation phenomena in noninteracting systems. It was recently recognized, from a synoptic view of the exptl. data involving a wide range of materials, that there exists a remarkable universality of **dielec**.-response behavior regardless of phys. structure, types of bonding, chem. type, polarizing species and geometrical configurations. This strongly suggests that there should exist a correspondingly universal mechanism of **dielec**. polarization in **condensed** matter. This work proposes such a universal mechanism assocd. with the existence of some ubiquitous very low energy excitations in the system. These excitations exhibit an IR divergent-like response to transitions of the polarizing species induced by a time-varying elec. field in the **dielec**. and give rise to the universal **dielec**. response.
ST **dielec** loss **condensed** matter; solid **dielec** loss; liq **dielec** loss; ferroelec material **dielec** loss; semiconductor **dielec** loss; **electret dielec** loss; polymer **dielec** loss; liq crystal **dielec** loss; amorphous material **dielec** loss; glass **dielec** loss; org compd **dielec** loss
IT Amorphous substances
Electrets
Liquid crystals
Semiconductor materials
(**dielec**. loss in, frequency dependence of)
IT Polymers, properties
RL: PRP (Properties)
(**dielec**. loss in, frequency dependence of)
IT **Dielectric** loss
(in **condensed** matter, frequency dependence of)

L19 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2001 ACS

AN 1976:543949 HCAPLUS
DN 85:143949
TI Considerations on the nature of **electret** charge in poly(methyl methacrylate)
AU Neagu, Eugen
CS Rom.
SO An. Stiint. Univ. "Al. I. Cuza" Iasi, Sect. 1b (1974), 20(1), 51-8
CODEN: AUZFAA
DT Journal
LA French
CC 36-5 (Plastics Manufacture and Processing)
AB The introduction of a thin sheet of paper, as a **condenser**, between a poly(methyl methacrylate) (I) [9011-14-7] layer and the electrode in the formation of an **electret** did not effect the intensity of the elec. field but did cause a decrease in the charge remaining in the **electret**. **Electret** charges resulted from injection of charges from the electrode into the **dielec**., from the **dielec**. into the electrode, from a process of thermal activation and formation of electron-hole pairs, and charges due to polarization. I **electrets** were prepd., with and without the paper interlayer, at 421.degree.K and 4000, and 8000, and 9000 V/cm field intensity and at 395.degree.K and 10,000 V/cm field intensity. The increase in field intensity led to an increase in interfacial polarization at the contact surface which obscured the charge formation phenomenon. The appearance of a homocharge was related to the intensity of the polarizing field and to temp. for any given metal-**dielec**. system.
ST polymethacrylate **electret** charge formation
IT Electric field, chemical and physical effects
(on charge formation in poly(methyl methacrylate) **electrets**)
IT **Electrets**
(poly(methyl methacrylate), charge formation in)
IT 9011-14-7
RL: PRP (Properties)
(**electret**, charge formation in)

L19 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1975:58715 HCAPLUS
DN 82:58715
TI **Electret** properties of biaxially oriented polypropylene films
AU Eidel'nant, M. P.; Romanovskaya, O. S.; Shuvaev, V. P.; Sergun'ko, A. M.; Myasnikov, G. D.; Lesnykh, O. D.
CS USSR
SO Plast. Massy (1974), (9), 41-4
CODEN: PLMSAI
DT Journal
LA Russian
CC 36-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 76
AB Biaxially-oriented polypropylene (I) [9003-07-0] films have **electret** properties and can be used as microphone components at room temp. and occasionally at temps. .ltoreq.60.degree.. The rate of the elec. charge dissipation from I surface increases when the charge d. (.sigma.) and temp. are increased. The value of .sigma. after the discharge during time .tau. is given by .sigma. = .sigma.0/(1 + .alpha..tau.).beta., where .sigma.0, .alpha., and .beta. are consts. Assuming that the elec. discharge of I **electret** (e.g. a **condenser** consisting of I film coated with grounded Al on 1 side and charged on the other side) proceeds through the interior of I only, its sp. resistance (.rho.) can be calcd. since d.sigma./d.tau. + .sigma./.epsilon..epsilon.0.rho. = 0; .epsilon. and .epsilon.0 are the **dielec**. consts. of I membrane and vacuum resp.
ST polypropylene **electret** discharge; microphone membrane oriented polypropylene
IT Electric resistance
(calcn. of, of polypropylene **electrets**)
IT Electric charge

(d. of, calcn. of, of polypropylene **electrets**)
IT **Electrets**
(polypropylene, elec. charge d. and elec. resistance of, calcn. of)
IT 9003-07-0
RL: USES (Uses)
(**electrets** from biaxially oriented, elec. charge d. and elec. resistance of, calcn. of)

L19 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1974:8127 HCAPLUS
DN 80:8127
TI Evaluation of the depth of homodischarge penetration into film corona **electrets**
AU Grinchenko, I. M.; Zakrzhevskii, V. I.; Tairov, V. N.
CS Leningr. Elektrotekh. Inst., Leningrad, USSR
SO Izv. Vyssh. Ucheb. Zaved., Fiz. (1973), 16(6), 158-9
CODEN: IVUFAC
DT Journal
LA Russian
CC 71-3 (Electric Phenomena)
Section cross-reference(s): 37
AB The **electret** homocharge of poly(tetrafluoroethylene) (I) films, which were exposed to a corona discharge, is localized in a very thin layer approx. 0.7-0.9 .mu. deep in the films. The thickness of this layer increases with increasing discharge duration. The **electret** -layer thickness was detd. by the method of **dielec.** losses by using Au, plated on the nonpolarized and corona **electret** I films, as electrodes. The film exposed to the corona discharge behaves as a 2-layer **condenser.**
ST **electret** film homocharge depth; charge depth **electret** film
IT **Dielectric** loss
(of poly(tetrafluoroethylene) film **electrets,** homocharge depth penetration from corona discharge in relation to)
IT Electric charge
(penetration depth of, into poly(tetrafluoroethylene) film **electrets** from corona discharge)
IT Electric corona
(poly(tetrafluoroethylene) **electret** charge penetration in presence of)
IT **Electrets**
(poly(tetrafluoroethylene) films, homocharge depth penetration in, from corona discharge)
IT 9002-84-0
RL: USES (Uses)
(**electrets,** homocharge penetration depth in film, from corona discharge)

L19 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1973:165269 HCAPLUS
DN 78:165269
TI **Condensation** and epitaxial growth of evaporated thin films on sodium chloride covered by an amorphous **dielectric** intermediate layer
AU Barna, A.; Barna, P. B.; Pocza, J. F.; Pozsgai, I.
CS Res. Inst. Tech. Phys., Hung. Acad. Sci., Budapest, Hung.
SO Acta Phys. (1973), 33(3-4), 399-410
CODEN: APAHAQ
DT Journal
LA English
CC 70-1 (Crystallization and Crystal Structure)
Section cross-reference(s): 71
AB Expts. were carried out to study the **condensation** and epitaxy of indicator films (e.g. Au, ZnS, PbS) on the surface of NaCl, covered by amorphous, intermediate layers (e.g. C, SiOx). The results confirmed that the properties of NaCl single-crystal inducing epitaxial growth of thin films can be transferred by an intermediate, amorphous **dielec.**

layer to the indicator film. This can be explained by the growth of the intermediate layer behaving as an **electret** in the potential field of the substrate crystal. The **condensation** of the indicator film is affected by the degree to which the intermediate layer is polarized by the substrate crystal.

ST **condensation** thin film; epitaxial growth thin film; **dielec** layer film epitaxy

IT Epitaxy
(on sodium chloride, covered with amorphous **dielec**. intermediated layer)

IT 1314-87-0
RL: PROC (Process)
(epitaxy of, on sodium chloride with amorphous intermediate layer)

IT 1314-98-3, properties 7440-57-5, properties
RL: PRP (Properties)
(epitaxy of, on sodium chloride with amorphous intermediate layer)

IT 7440-44-0, properties 11126-22-0
RL: PRP (Properties)
(epitaxy on sodium chloride covered with amorphous intermediate layer of)

IT 7647-14-5, properties
RL: PRP (Properties)
(epitaxy on, covered with amorphous **dielec**. intermediate layer)

L19 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1971:502496 HCAPLUS
DN 75:102496
TI **Dielectric** behavior of perspex **magnetoelectrets**
AU Qureshi, M. S.; Bhatnagar, C. S.
CS Dep. Phys., M.A. Coll. Technol., Bhopal, India
SO Indian J. Pure Appl. Phys. (1971), 9(6), 361-3
CODEN: IJOPAU
DT Journal
LA English
CC 71 (Electric Phenomena)

AB Magnetic field of 9.43 kG was used to prep. **magnetoelectrets** of Perspex at 2 forming temps., 160.degree. and 170.degree., which are above the softening point of the plastic. The capacitance of a parallel-plate **condenser**, with Perspex disk as the **dielec**. material was measured, before and just after the **magnetoelectret** formation and also after 30 days of **electret** formation, at different audio frequencies (0.2-15 Hz). The capacitance which decreases just after the **electret** formation subsequently recovers as the **electret** charge decays. The effect is greater for **magnetoelectrets** prepd. at 170.degree.. The results are correlated with the 2-charge theory proposed by M. L. Khare and B.

ST **dielec** props Perspex **magnetoelectrets**; **electret** magneto **dielec** props

IT **Electrets**
(magneto-, perspex)

IT Electric capacitance
(of perspex **magnetoelectrets**)

IT 9011-14-7, properties
RL: PRP (Properties)
(**magnetoelectrets**, Perspex)

L19 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1969:69117 HCAPLUS
DN 70:69117
TI Polarizable **dielectric** polycarbonate
IN Perlman, Martin M.; Reedyk, Cornelis W.
PA Northern Electric Co. Ltd.
SO Brit., 6 pp.
CODEN: BRXXAA
DT Patent
LA English

IC   H01G
CC   37 (Plastics Fabrication and Uses)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1135998		19681211		
				US	19661101

AB   High-mol.-wt. polycyclic bisphenol polycarbonates having high vol. resistivity, made in film form and polarized, retain their charge for long periods of time, e.g. 10 years. They are superior to other polarizable **dielec**. materials for use as diaphragms in **condenser** microphones. Polycyclic carbonates contg. either a single norbornane ring or a norbornane ring attached to the main mol. chain by another ring are preferred. Dissolved in common solvents, they can be cast, giving clear films with good tensile and elec. properties. They are noncryst. compds. with mol. wts. 10,000-100,000. For example, a high-mol.-wt. thermoplastic polymer made from 4,4'-(2-norbornylidene)diphenol was compared with poly(ethylene terephthalate) and poly(tetrafluoroethylene). After polarizing by applying a potential across the films for 30 min. at 120.degree. and 3 hrs. at room temp., the voltage decay was measured over 9 months. The charge on the polycarbonate film remained steady during this period, while the other films showed considerable voltage decay.
ST   polarizable **dielec** polycarbonates; **dielec** polycarbonates polarizable; polycarbonates **dielec** polarizable; films polycyclic bisphenol polycarbonates
IT   **Electrets**
        (from 4,4'-(2-norbornylidene)diphenol polycarbonates)
IT   24979-94-0   26007-14-7
     RL: DEV (Device component use); USES (Uses)
        (**electrets** from)

L19 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN   1968:34249 HCAPLUS
DN   68:34249
TI   Production and charge decay of film **electrets**
AU   Perlman, Martin M.; Reedyk, Cornelis W.
CS   Coll. Mil. Roy., Saint-Jean, Can.
SO   J. Electrochem. Soc. (1968), 115(1), 45-9
     CODEN: JESOAN
DT   Journal
LA   English
CC   71 (Electric Phenomena)
AB   The object of this work has been to obtain charged **dielec**. films, **electrets**, that retain their charge over periods of years when left open circuited. Such films are receiving increasing attention because of their potential use in practical devices such as **condenser** microphones, electrostatic recorders, and air filters. Procedures have been devised to form highly charged thin films and to measure their decay rates. Charge decay comparisons are made among different materials at various temps., charged in different ways. A procedure is developed that enables lifetimes of **electrets** at room temp. to be predicted by extrapolating short charge decay times at elevated temps. A no. of materials are identified as suitable for very long-lived **electrets**.
ST   FILM **ELECTRETS**; CHARGE DECAY FILM **ELECTRETS**; **ELECTRETS** FILM
IT   Films
        (**electret**, production and charge decay of)
IT   **Electrets**
        (film, production and charge decay of)

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> d que
L46          131 SEA FILE=INSPEC ABB=ON  PLU=ON  ELECTRET? (3A) (CONDEN? OR
                 VOLUME OR TEMP? OR PRESSUR?)
L48           18 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (VAPOR? OR VAPOUR? OR LIQUID?
                 OR WATER OR FLUORCARBON?) AND L46
L49            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (PREP OR PROC OR FMU)/RL AND
                 L48


=> d max
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L49 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2001 ACS
AN 1982:591877 HCAPLUS
DN 97:191877
TI Effect of the electric field of a polymeric electret on the sorption of **vapors** of an organic solvent
AU Vertyachikh, I. M.; Gol'dade, V. A.; Neverov, A. S.; Pinchuk, L. S.
CS Inst. Mekh. Metallopolim., Gomel, USSR
SO Vysokomol. Soedin., Ser. B (1982), 24(9), 683-7
CODEN: VYSBAI; ISSN: 0507-5483
DT Journal
LA Russian
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 37, 66
AB The sorption of solvent **vapors** by polymer **electrets** at **temps**. close to the glass-transition temp. (Tg) is affected by the elec. field and the electrostatic-polarization interaction between the sorbent and sorbate. Electrets were prepd. by heating of poly(vinylbutyral) films at 393 K in contact with short-circuit electrodes from Al and Cu foils and subsequent cooling to room temp. The sorption capacity of electret films for diethylene glycol and C6H6 at Tg (323 K) is lower than that of unpolarized films. No such difference is obsd. at 303 K due to the decrease in segmental mobility of the polymer below Tg. The low sorption capacity of polarized films at Tg is related to the formation of oriental dipoles by the solvents under the effect of the elec. field which hinders further sorption by the electret film.
ST polyvinylbutyral electret sorption solvent; glycol sorption polyvinylbutyral electret; benzene sorption polyvinylbutyral electret
IT Sorption
(of solvent **vapors**, by poly(vinylbutyral) film **electrets**, elec. field and **temp**. effect on)
IT Vinyl acetal polymers
RL: PRP (Properties)
(butyrals, film electrets, sorption by, of solvent **vapors**, elec. field and temp. effect on)
IT Electrets
(film, poly(vinylbutyral), elec. field of, solvent **vapor** sorption in relation to)
IT 71-43-2, properties 111-46-6, properties
RL: PEP (Physical, engineering or chemical process); **PROC (Process)**
(sorption of, by poly(vinylbutyral) electret film, elec. field and temp. effect on)

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L2       2923250 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (VAPOR OR VAPOUR OR LIQUID?
                 OR WATER OR FLUROCARBON? OR AQUEOUS?)
L17       378623 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?CONDEN?
L22         1649 SEA FILE=WPIDS ABB=ON  PLU=ON  ?ELECTRET?
L25        67512 SEA FILE=WPIDS ABB=ON  PLU=ON  L2 (S) L17
L26           10 SEA FILE=WPIDS ABB=ON  PLU=ON  L25 AND L22


=> d max 1-
YOU HAVE REQUESTED DATA FROM 10 ANSWERS - CONTINUE? Y/(N):y

L26  ANSWER 1 OF 10  WPIDS COPYRIGHT 2001   DERWENT INFORMATION LTD
AN   1994-279257 [34]   WPIDS
DNN  N1994-220057
TI   In-flow acoustic sensor for measuring waves in fluids having sub-sonic,
     super-sonic fluids in wind tunnel - has blunt-shaped nose with cavity
     contg. microphone corresp. to cylindrical section of sensor.
DC   S02
IN   ALLEN, C S
PA   (USAS) NASA US NAT AERO & SPACE ADMIN
CYC  1
PI   US 8149896    A  19940815 (199434)*     24p    G01P000-00
     US 5477506    A  19951219 (199605)      11p    H04R023-00
ADT  US 8149896 A US 1993-149896 19931110; US 5477506 A US 1993-149896 19931110
PRAI US 1993-149896   19931110
IC   ICM  G01P000-00; H04R023-00
AB   US    8149896 A UPAB: 19941013
     The acoustic sensor (10) comprises a nose section (18) having a blunt tip
     (18A) and a shoulder (18B), a straight-sided cylindrical section (20), a
     transition point (22) where the shoulder (12B) mates with the straight
     sided cylindrical section (20), a microphone with a diaphragm (24), and a
     screen (26) comprising a screen material covering the entrance to the
     microphone diaphragm (24).
          The microphone may be of a condensor or electret
     type or any other type of instrument that produces an electric signal that
     is proportional to the acoustic waves travelling through in fluid flow.
     Further, the screen may be of a continuous material and attached to the
     cylindrical section (20) so as to seal the enclosed microphone diaphragm
     (24) allowing it, as well as the sensor (10), to be submerged in a
     liquid fluid.
          ADVANTAGE - Has proper aerodynamic properties. Sensor insertion into
     fluid flow does not excite instabilities in flow or in microphone
     diaphragm. Nose section is relatively insensitive to small angles of
     incidence normally created by a non-parallel insertion of sensor into
     flow. Stable static pressure at point of measurement.
     Dwg.3/7
ABEQ US    5477506 A UPAB: 19960205
     An acoustic sensor for measuring acoustic waves contained in a flowing
     fluid, the sensor comprising:
          (a) an axisymmetric elliptical nose section having a tip on one of
     its ends and a transition point on its other end, the elliptical nose
     section having a shape in cross section defined by a number of fresnel
     curves and having a major axis serving as the axis of symmetry of the
     axisymmetric nose section;
          (b) a straight-sided cylindrical section having a predetermined
     diameter (D), a predetermined length (l) and one of its ends connected to
     the transition point; and
          (c) an instrument for measuring unsteady pressure fluctuations and
     located in a cavity downstream from the transition point at a distance
     corresponding to about 3 to 4 times the diameter.
     Dwg.3a/7
FS   EPI
FA   AB; GI
MC   EPI: S02-G02X; S02-J07
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L26 ANSWER 2 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1991-178927 [25] WPIDS

DNN N1991-137094 DNC C1991-077232

TI Improved combustion of fuels with oxygen-contg. gases - by contacting reactants directly on surface of pref. inner surface housing of IC engine.

DC A97 H06 P73 Q52 Q53

IN STUEER, W; STUER, W

PA (STUE-I) STUER W; (STUE-I) STUEER W

CYC 34

PI DE 3940654 A 19910613 (199125)*
WO 9109216 A 19910627 (199128)
RW: AT BE CH DE DK ES FR GB GR IT LU NL OA SE
W: AT AU BB BG BR CA CH DE DK FI GB HU JP KP KR LK LU MC MG MW NL NO RO SD SE SU US
AU 9179949 A 19910718 (199142)
EP 502937 A1 19920916 (199238) DE 24p F02B051-04
R: AT BE CH DE DK ES FR GB GR IT LI LU NL SE
JP 05502281 W 19930422 (199321) 6p F02B051-04
US 5507267 A 19960416 (199621) 7p F02M027-04

ADT DE 3940654 A DE 1989-3940654 19891208; EP 502937 A1 WO 1990-EP2131 19901207, EP 1991-900251 19901207; JP 05502281 W WO 1990-EP2131 19901207, JP 1991-500654 19901207; US 5507267 A CIP of US 1991-635189 19910305, CIP of US 1992-859511 19920608, US 1994-187198 19940125

FDT EP 502937 A1 Based on WO 9109216; JP 05502281 W Based on WO 9109216

PRAI DE 1989-3940513 19891207; DE 1989-3940654 19891208

REP 2.Jnl.Ref; EP 349663; FR 2028887; FR 2325815; GB 1152957; GB 2092668; JP 60219412; JP 60259719

IC ICM F02B051-04; F02M027-04
ICS B01J019-08; B32B007-02; B32B025-20; F02B077-02; F02M035-10

AB DE 3940654 A UPAB: 19930928
In the improved combustion of fuels with O2-contg. gases, the novelty is that the reactants or one of the reactants are directly contacted bn the surface (pref. the inner surface of an air housing of an I.C. engine). The surface either supports or is made of a hardened material (I), which before or during hardening is electrically polarised or charged. It can also be electrostatically charged by friction.

USE/ADVANTAGE - Useful for combustion of finely divided fuels with O2-contg. gases, esp. for combustion of gaseous, vaporous or **liq** . fuels esp. in I.C. engines of vehicles. Pref. electrical treatment of (I), esp. electrical polarisation or charging occurs in an electric D.C. field (1 KV) directly before hardening. (I) is a polymeric plastic, esp. polyorganosiloxane, PTFE, PE, PP, **condensed** silicon resin or polymethylsiloxane, or paraffin and their mixts., which can be dissolved in a solvent, such as trichloroethylene or crystal oil (petrol fraction).
@(6pp Dwg.No.0/0)s t

ABEQ JP 05502281 W UPAB: 19931114
In the improved combustion of fuels with O2-contg. gases reactant(s) is directly contacted on the surface (pref. the inner surface of an air housing of an I.C. engine). The surface either supports or is made of, a hardened material. (I), which before or during hardening is electrically polarised or charged. It can also be electrostatically charged by friction.

Pref. electrical treatment of (I) esp. electrical polarisation or charging occurs in an electric D.C field (1 KV) directly before hardening. (I) is a polymeric plastics esp., polyorganosiloxane, PTFE, PE, PP, condensed silicon resin or polymethylsiloxane or paraffin and their mixts., which can be dissolved in a solvent such as trichloroethylene or crystal oil (petrol fraction).

USE/ADVANTAGE - Useful for combustion of finely divided fuels with O2-contg. gases esp. for combustion of gaseous, vaporous or liq-fuels esp. in I.C. engine of vehicles.

ABEQ US 5507267 A UPAB: 19960529
A process for treating combustion reactants for providing an efficient combustion of the reactants, the process comprising the steps of:

applying an electrically polarizable material to a surface of part of a fuel system for an internal combustion engine where the surface is one

of an inner surface of an air filter housing, a surface of a valve a surface of a fuel injection jet, and combinations of it;
electrically polarizing the electrically polarizable material causing the electrically polarizable material to become an electrically polarized **electret** material; and
contacting at least one of the reactants with the electrically polarized **electret** material prior to combustion of the reactants.
Dwg.0/2

FS CPI GMPI
FA AB
MC CPI: A12-T03; H06-B
DRN 0441-U; 0441-U
PLC UPA 19930924
KS: 3003 0210 0211 0218 0231 0239 0248 0947 1306 2318 2420 2424 2427 2506 2507 2553 2647 2718 2733 2743 2829

FG: *001* 014 04- 040 041 046 047 05- 050 062 064 087 13- 229 23- 316 332 38- 398 42& 42- 431 434 477 506 511 575 582 623 624 627 672 688 721 722

L26 ANSWER 3 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1990-146443 [19] WPIDS
DNN N1990-113450
TI Electrodynamic heat-pipe for direct conversion of heat - has evaporation-condensation zones, nozzle-ioniser, and collector of charges.
DC Q78 W06 X25
IN BALOKHIN, V L; BOLOGA, M K; KOZHUKHAR, I A
PA (AMLP-R) AS MOLD APPL PHYS
CYC 1
PI SU 1495630 A 19890723 (199019)*
ADT SU 1495630 A SU 1987-4352797 19871207
PRAI SU 1987-4352797 19871207
IC F28D015-02
AB SU 1495630 A UPAB: 19930928
Parent Cert. dealt with pipe having body (1) with evapn./ **condensation** zones (2,3) and **vapour** channel (4), plus tubular insert (5) along body axis and, one above the other, ioniser in form of nozzle (6) and collector (7) of electrical charges. Pipe also has lengthwise dielectric partition (10) on collector (7) and dividing it into two parts, with two electrodes on both sides of partition between nozzle and collector. Each electrode is electrically connected with part of collector on other side of partition. Electrodes are coated with **electrets**.
As heat is fed into and removed from evapn. (2) and **condensation** (3) zones, heat and mass-transfer take place as state of heat-carrier alters. **Vapour** from (2) goes via nozzle (6) along pipe (11) into zone (3). **Condensate** from collector (8) goes via pipe (9) back to nozzle (6) into zone (2). This **condensate** is dispersed by **vapour** and electrically charged. Drops are given opposite charges by electrodes (13) and particles are sepd. by partition (12) into two flows, on to two parts of mesh-collector (7). Electrical energy goes to consumer via outlet (15).
USE/ADVANTAGE - In heat-engineering for direct conversion of heat-energy into electrical energy, e.g. in marine buoys. Conversion process is intensified. Bul.27/23.7.89.
1/1

FS EPI GMPI
FA AB; GI
MC EPI: W06-C09; X25-L07

L26 ANSWER 4 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1989-173971 [24] WPIDS
DNN N1989-132816 DNC C1989-076918
TI **Electret** film for air filters, masks, etc. - comprises charged porous film of dielectric polymer with particles of organic, inorganic or metallic material spaced at various intervals.

DC A88 J01 P41 P42 P73 U11
IN TAKASE, S; TANI, Y
PA (TOYM) TOYO BOSEKI KK
CYC 3

PI	DE 3839956	A	19890608	(198924)*	12p	
	JP 01199614	A	19890811	(198938)		
	JP 01258714	A	19891016	(198947)		
	US 5110620	A	19920505	(199221)	10p	
	US 5112677	A	19920512	(199222)	10p	D03D025-00
	JP 2536584	B2	19960918	(199642)	4p	B01D039-14
	JP 2595586	B2	19970402	(199718)	5p	B01D039-14
	DE 3839956	C2	19980702	(199830)		B03C003-28

ADT DE 3839956 A DE 1988-3839956 19881126; JP 01199614 A JP 1987-301302 19871128; JP 01258714 A JP 1988-85985 19880406; US 5110620 A US 1991-770564 19911003; US 5112677 A US 1988-276617 19881128; JP 2536584 B2 JP 1988-85985 19880406; JP 2595586 B2 JP 1987-301302 19871128; DE 3839956 C2 DE 1988-3839956 19881126
FDT JP 2536584 B2 Previous Publ. JP 01258714; JP 2595586 B2 Previous Publ. JP 01199614
PRAI JP 1988-85985 19880406; JP 1987-301302 19871128
IC ICM B01D039-14; B03C003-28; D03D025-00
ICS B05D003-06; B05D003-12; B05D003-14; B29D007-01; B32B007-02; B32B027-02; B32B027-14; B32B027-18; B32B033-00; C08J005-18; C08J007-00; D04H001-72; H01B019-00
ICA D06M010-00
AB DE 3839956 A UPAB: 19970502

Electret film (I) comprises a porous foil mfd. from a dielectric polymer (II) and at least one solid organic, inorganic or metallic material (III) which is spaced at various intervals. (I) is mfd. by treating (II) with (III) and electrically charging the film.

The porous film is spun, knitted or non-woven textile fabric, porous film or porous foam; (II) is polyolefin, PVDC or polycarbonate fibre, esp. polyolefin, pref. of dia. 0.01-100 microns; (III) is in the form of particles of ceramic, metal nitride or carbon or an organic material solid at room temp. (partic. a solid organic acid or deriv. thereof), pref. of size 0.001-50 microns, or Ag, Au, Al or Sn metal; (III) is vaporised by heating and the foil is treated with the **vapour** or **condensed** particles therefrom, and then electrified by corona discharge; amt. of particles (III) is 0.01-20 wt.%.

USE/ADVANTAGE - (I) is useful for the prodn. of air filters, masks, etc. for removing dust from the air for clean rooms, buildings, etc. W.r.t. prior-art **electret** films, (I) can carry a larger charge and retain it for a longer time, thus retaining its dust-collecting power.
Dwg.0/3

ABEQ US 5110620 A UPAB: 19930923

Mfr of an **electret** sheet comprises providing a surface of a porous sheet with at least one particulate solid spaced at various intervals selected from (a) organic materials that are solid at room temp. and consist of carbocylic acids (metal salts), polyethylene, polypropylene, polyamide, polyethylene terephthalate, polyvinylidene fluoride, polyetetrofluoroethylene, polystyrene, PVC, cellulose or PVA; (b) ceramics, metal nitrides or C black; and (c) Al, Ag, Sn, Ni or Cu. The sheet is subsequently electrified.

USE/ADVANTAGE - Used as an air filter or a mask. The filter can be used for purifying air in a clean room or may be attached to a vacuum cleaner, a copying machine. The sheet has a large amt. of electrostatic charge, contains a small amt. of fibres but has a high collection efficiency which does not decrease with time.

ABEQ US 5112677 A UPAB: 19930923

An **electret** sheet comprises a porous sheet made of a dielectric polymer and a solid material consisting of organic materials solid at room temp and consisting of organic carboxylic acids, polyethylene, polypropylene etc., inorganic materials that are ceramics, metal nitrides or carbon black, and metallic materials eg aluminium, silver, tin, etc. The porous sheet has material in particulate form spaced at various intervals on the surface of the dielectric polymer.

USE - **Electret** sheet is suitable for use as a air-filter,

mask etc.
FS CPI EPI GMPI
FA AB
MC CPI: A09-A03; A11-C04B; A11-C04B2; A12-E01; A12-H04; J01-G03; J01-G04
EPI: U11-C15
PLC UPA 19930924
KS: 0209 0210 0231 0232 0248 0836 0947 1292 2196 2478 2481 2482 2498 2499
2513 2528 2539 2549 2553 2555 2653 2654 2671 2692 2702 2703 2715 2743
2820 2821

FG: *001* 014 04- 041 046 050 062 063 064 071 087 143 155 157 158 274 435
466 467 471 472 481 483 491 493 505 506 507 511 575 595 596 613
619 622 623 627 664 665 666 667 688 694 722

L26 ANSWER 5 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1986-198285 [31] WPIDS
DNN N1986-148012 DNC C1986-085301
TI Crematorium furnace flue gases cleaning - induct with several types of
filters in series.
DC J01 Q73 Q74
PA (ACSM-N) ACS MILIEUTECHN
CYC 10
PI EP 188853 A 19860730 (198631)* DE 10p
R: AT BE CH DE FR GB IT LI NL SE
NL 8500020 A 19860801 (198635)
ADT EP 188853 A EP 1985-202152 19851231; NL 8500020 A NL 1985-20 19850104
PRAI NL 1985-20 19850104
REP CA 943873; CH 593090; US 4175934
IC B01D046-12; B01D050-00; F23G001-00; F24F003-16
AB EP 188853 A UPAB: 19930922
The flue gases from a furnace in a crematorium are purified before they are discharged in the atmosphere by passing them through a duct with a blower at the end. This creates a passage with a series of consecutive filters by which the different pollutants are removed from the air in turn.

Typically, a blower (4) draws the flue gases into the intake (2) of a duct where a sand filter (5) removes the suspended tar components. An air cooler (6) causes the **water vapour** to **condense**
for removal before the entry in a dust filter (7). This can be a bag filter, an electrostatic or an **electret** type.

A chemical absorption filter (8) and an activated carbon filter (9) are both multi frame filters. The final filter (10) is based on microglass fibres.

ADVANTAGE - This removes both the components (SO2, SO3, NOx, NF, chlorine cpds., fly ash) which would be left by an after combustion, and the objectionable smell.
1/1
FS CPI GMPI
FA AB
MC CPI: J01-E02B; J01-G03B
DRN 1674-U; 1784-U; 1953-U

L26 ANSWER 6 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1982-81029E [38] WPIDS
TI Heat pipe with electro-hydrodynamic generator - has manifold with
peripheral metal cylinder enveloped by dielectric cowling.
DC J08 Q78 X11
IN MAIBORODA, A N; SHKILEV, V D
PA (AMLA-R) AS MOLD APPLD PHYS
CYC 1
PI SU 883643 B 19811123 (198238)* 2p
PRAI SU 1979-2736779 19790319
IC F28D015-00
AB SU 883643 B UPAB: 19930915
The heat pipe with electro-hydrodynamic generator is based on a Parent Cert. The pipe has an evaporator (1), **condenser** (2) and an electro-hydrodynamic transformer used for heat carrier **vapour**

stream energy conversion to electric energy. The transformer is placed in the **vapour** chamber and has an ioniser (3). The transformer is made as a nozzle of bimetal plates (7) covered on the **vapour** stream side by a dielectric. An adjustable high voltage transformer (4) used as exciter is placed between manifold (5) and ioniser.

To reduce self-starting time whilst simultaneously increasing the outlet potential the generator is provided with a metal cylinder (8) about its periphery. The cylinder (8) is enveloped by dielectric cowling (9). **Electret** (10) is used as dielectric for bimetal plates covering. Manifold (5) is also provided with mesh (11) having needle electrodes.
Bul.43/23.11.81
1/1

FS CPI EPI GMPI
FA AB
MC CPI: J08-C04
EPI: X11-H03

L26 ANSWER 7 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1981-19581D [12] WPIDS
TI Poly-**electret** prodn. by vapour deposition of substd. para xylylene - on electrode in electric field under vacuum.
AW XYLENE.
DC A85 E14 L03 V01
IN BEACH, W F; MAHONEY, D M
PA (UNIC) UNION CARBIDE CORP
CYC 5

PI	DE 3033163	A	19810312	(198112)*
	GB 2059158	A	19810415	(198116)
	JP 56037620	A	19810411	(198122)
	US 4291244	A	19810922	(198141)
	CA 1146907	A	19830524	(198324)
	GB 2059158	B	19831130	(198348)
	DE 3033163	C	19850228	(198510)

ADT DE 3033163 A DE 1980-3033163 19800903
PRAI US 1979-72302 19790904
IC C08F002-52; C08J003-28; G11C013-02; H01G007-02; H01H001-02
AB DE 3033163 A UPAB: 19930915
Polyelectret prodn. involves passing sufficient dipolar, substd. p-xylylene monomer (I) **vapour** into a deposition zone between 2 spaced electrodes to form a coating on their opposite surfaces and producing an intensive electric field between them by activating an external voltage source. The (I) **vapour** is introduced into the deposition zone under vacuum and at a temp. such that the **vapour condenses** on the surfaces, where it polymerises to "Parylene" (RTM) (II) and forms an **electret**.
ABEQ DE 3033163 C UPAB: 19930915
Polymer **electret** comprises a parylene ring-substd. by Cl, o-dichloro, cyano or o-dicyano gps. as a coating on a metallic layer. Pref. some/all of the methylene H atoms are replaced by F.

ADVANTAGE - The **electrets** have a high crystalline m.pt. and high sensitivity and frequency response. Prodn. is by direct electric current discharge of the relevant condensants onto the metal (as opposed to the multistage processes usually reqd. with conventional PVDF). The parylene film can be stripped from the base and is self-supporting.
FS CPI EPI
FA AB
MC CPI: A05-J; A11-B05A; A11-B05C; A12-E; A12-E12; A12-L05; E10-A06; L03-B03
EPI: V01-B02B; V01-B04
PLC UPA 19930924
KS: 0016 0019 0028 0209 0210 0212 0230 0231 1311 1893 1900 1914 2081 2095 2432 2439 2654 2667 2706 2728 2742 2743 2808

FG: *001* 011 028 04& 04- 062 063 064 072 151 153 163 225 246 347 358 431 438 467 47& 477 575 596 604 608 623 627 643 658 659 683 688 694 720 722 725 726
CMC UPB 19930924
M3 *02* K0 H7 M311 M332 M322 M280 M342 M341 M340 M343 M344 M350 M391

M392 G100 M531 L952 L140 L199 H601 H608 H609 H685 H602 H720 N020
N310 Q110 Q120 M510 M520 M540 Q334 Q451 Q454 M720 Q010 M414 M902

L26 ANSWER 8 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1981-19580D [12] WPIDS
TI Poly-**electret** prodn. from metallised poly para xylylene film - by earthing metal, charging and coating with poly para xylylene by monomer vapour deposition.
AW MICROPHONE LOUDSPEAKER RADIATE DETECT DOSIMETER ELECTROPHOTOGRAPHIC.
DC A85 L03 V01 V06
IN NOWLIN, T E; RASCHKE, C R
PA (UNIC) UNION CARBIDE CORP
CYC 5
PI DE 3033162 A 19810312 (198112)*
GB 2058454 A 19810408 (198115)
JP 56037621 A 19810411 (198122)
US 4291245 A 19810922 (198141)
GB 2058454 B 19830608 (198323)
CA 1146908 A 19830524 (198324)
DE 3033162 C 19850515 (198521)
ADT DE 3033162 A DE 1980-3033162 19800903
PRAI US 1979-72303 19790904
IC C08F002-52; C08J003-28; G11C013-02; H01G007-02
AB DE 3033162 A UPAB: 19930915
Polyelectret prodn. involves (a) earthing the metal on one side of a "parylene"(RTM)(I) film; charging the unmetallised side of the film with a d.c. corona to give a high enough charge to convert the film to an **electret**; (c) providing sufficient p-xylylene monomer **vapour** to coat the charged film; and (d) passing the **vapour** and **electret** into a deposition zone under vacuum and at a temp. at which the **vapour condenses**, so that the **electret** is coated conformably with (I).

Electrets are useful in microphones, loudspeakers, radiation detectors and dosimeters and in electrophotography. The surface charge is not broken down in the process and no vacuum is needed to introduce the charge. The process allows other configurations besides flat surfaces to be charged easily and the **electrets** have a high sensitivity and high frequency response.
ABEQ DE 3033162 C UPAB: 19930915
Polymer **electrets** (A) consist of as known a polymer film having a metal layer on one side and carrying a surface charge on the other side, which side is uniformly covered by a 2nd polymer film, and (B) both polymer films made of parylene, pref. substd. with Cl, Cl2, CN or (CN)2.

Several or all of the H of the methylene in one or both parylene films are pref. replaced by F. The 2nd parylene film is deposited under vacuum from the **vapour** of a p-xylylene monomer onto the charged side of the 1st parylene film by **condensn**. The unsubstd. poly-p-xylylene has structure -(CH2-Q-CH2)n-, where Q is a p-linked benzene ring. The parylene films are suitably 0.1-10 microns thick.

ADVANTAGE - Simple process for the prodn. of **electrets** having a stable surface charge, do not require a vacuum for the charge injection and can be charged in configurations other than a flat form.
FS CPI EPI
FA AB
MC CPI: A05-J; A11-B05; A11-C04B; A12-E; A12-E12; A12-L05; L03-B03
EPI: V01-B02B; V06-J
PLC UPA 19930924
KS: 0016 0019 0028 0209 0210 0212 0231 1311 1872 1893 1900 1914 2160 2432
2439 2481 2483 2498 2500 2513 2555 2647 2654 2706 2728 2742 2743 2808

FG: *001* 011 028 04- 062 063 064 072 151 153 16- 163 225 246 344 431 435
438 466 467 47& 470 471 477 506 575 582 596 623 627 643 658 659
683 688 694 720 722 725 726

L26 ANSWER 9 OF 10 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1980-58852C [34] WPIDS
TI Removal of surface and vol. contamination of polymer **electrets** -

by treatment with inert solvent at b.pt..
DC   A85 L03 V01 V06
PA   (DEAK) AKAD WISSENSCHAFTEN DDR
CYC   1
PI   DD 141880   A 19800521 (198034)*
PRAI DD 1978-208888   19781106
IC   H01G004-00
AB   DD   141880 A UPAB: 19930902
      Polymer **electrets**, esp. in foil or film form, are treated before shaping and/or metallising with a fluid which does not dissolve the polymer, in a closed system at b. pt. of the fluid, for 1-50 (10-20) mins., and heated subsequently pref. at 10-20 degrees C above the b.pt.
      Used for treatment of components for **condenser** microphones, piezoelectric transducers, etc. Dust particles, grease layers, oil residues from vacuum pumps, etc. are removed, giving improved stability of the **electret** charge and polarisation, and better reproducibility of piezo- and pyro-electric effects. Quality of **vapour** -deposited metal coatings is also improved.
FS   CPI EPI
FA   AB
MC   CPI: A12-E; A12-E12; L03-A; L03-D04D
      EPI: V01-B02B; V06-E03
PLC   UPA   19930924
      KS: 0210 0215 0229 2382 2393 2400 2464 2481 2483 2498 2500 2513 2522 2555
          2575 2659 2742 2743 0949 0963 0843

      FG: *001* 011 03- 034 062 064 087 089 27& 352 402 405 414 420 435 456 459
          466 470 471 502 506 532 537 597 600 623 627 694 721 722
      FG: *002* 011 03- 062 064 071 352 402 405 414 420 435 456 459 466 470 471
          502 506 532 537 597 600 623 627 688 694 721 722

L26   ANSWER 10 OF 10 WPIDS
AN   1975-56440W [34]   WPIDS
TI   **Electret** production - by polarising high polymer dielectric contg liq crystal.
DC   A35 A85 L03 V01 V06 X12
PA   (NIRA) UNITIKA LTD
CYC   1
PI   JP 50021679   B 19750724 (197534)*
PRAI JP 1970-83685   19700924
IC   H01G007-02; H04R019-00
AB   JP   75021679 B UPAB: 19930831
      Method of making an **electret** comprises polarising a formed high polymer body of dielectric contg. **liquid** crystal matl. in a strong DC electric field. The **electret** obtained is used for a **condenser** microphone and a potentiometer.
FS   CPI EPI
FA   AB
MC   CPI: A12-E08; L03-B03
PLC   UPA   19930924
      FG: *001* 012 04- 427 466 470 506 507 623 627 694 722 726

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L2       2923250 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (VAPOR OR VAPOUR OR LIQUID?
                 OR WATER OR FLUROCARBON? OR AQUEOUS?)
L17       378623 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?CONDEN?
L37        14706 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L2 (S) L17
L38         1274 SEA FILE=COMPENDEX ABB=ON  PLU=ON  ELECTRET?
L39            1 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L37 AND L38
```

=> d all

L39 ANSWER 1 OF 1 COMPENDEX COPYRIGHT 2001 EI

AN 1995(31):3322 COMPENDEX

TI Percolation behaviour of **electret** at presence of **water condensation.**

AU Kuz'Min, Yu.I. (Electrotechnical Univ, Saint-Petersburg, Russia); Pshchelko, N.S.; Sokolova, I.M.; Zakrzhevskiy, V.I.

MT Proceedings of the 8th International Symposium on Electrets (ISE 8).

MO IEEE

ML Paris, Fr

MD 07 Sep 1994-09 Sep 1994

SO Proceedings - International Symposium on Electrets 1994.IEEE, Piscataway, NJ, USA,94CH3443-9.p 124-129
CODEN: PIELE8

PY 1994

MN 43091

DT Conference Article

TC Theoretical; Experimental

LA English

AB The time stability of the surface potential of PTFE and silicon dioxide **electrets** at room temperature are similar: after an initial small decay the potential is practically constant during a time interval that decreases as a humidity increases and then is drastically drops.The time stability of the surface potential is correlated with a potential relief of an **electret** sample.The presence of charge on a dielectric surface stimulates a process of the **water condensation** .A behavior of **electrets** in wet atmosphere is explained in terms of the percolation model that includes process of a nucleation and a growth of conductive clusters.A theoretical consideration within a framework of this model and experimental results are presented.(Author abstract) 4 Refs.

CC 708.1 Dielectric Materials; 933 Solid State Physics; 815.1.1 Organic Polymers; 804.2 Inorganic Components; 443.1 Atmospheric Properties; 701.1 Electricity: Basic Concepts and Phenomena

CT ***Electrets**; Conductive materials; Atmospheric humidity; Electric charge; Condensation; Nucleation; Mathematical models; Percolation (solid state); Polytetrafluoroethylenes; Silica

ST Conductive clusters; Time stability; Surface potential

```
L2       2923250 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (VAPOR OR VAPOUR OR LIQUID?
                 OR WATER OR FLUROCARBON? OR AQUEOUS?)
L17       378623 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?CONDEN?
L40        32279 SEA FILE=IFIPAT ABB=ON  PLU=ON  L2 (S) L17
L41          708 SEA FILE=IFIPAT ABB=ON  PLU=ON  ELECTRET?
L42            4 SEA FILE=IFIPAT ABB=ON  PLU=ON  L40 (S) L41


=> d bib kwic 1-
YOU HAVE REQUESTED DATA FROM 4 ANSWERS - CONTINUE? Y/(N):y

L42  ANSWER 1 OF 4  IFIPAT  COPYRIGHT 2001 IFI
AN     2249661  IFIPAT;IFIUDB;IFICDB
TI     METHOD FOR THE PRODUCTION OF AN ELECTRET SHEET; ELECTRIFICATION OF POROUS
       SHEET HAVING SPACED PARTICLES ON SURFACE
INF    Takase, Satoshi, Ohtsu, JP
       Tani, Yatsuhiro, Ohtsu, JP
IN     Takase Satoshi (JP); Tani Yatsuhiro (JP)
PAF    Toyo Boseki Kabushiki Kaisha, Osaka, JP
PA     Toyo Boseki K K JP (85320)
EXNAM Pianalto, Bernard
AG     Leydig, Voit & Mayer
PI     US 5110620          19920505  (CITED IN 013 LATER PATENTS)
AI     US 1991-770564      19911003
XPD    5 May 2009
RLI    US 1988-276617      19881128  DIVISION
PRAI   JP 1987-301302      19871128
       JP 1988-85985       19880406
FI     US 5110620          19920505
DT     UTILITY
FS     CHEMICAL
CLMN   8
GI     2 Drawing Sheet(s),  3 Figure(s).
ACLM   2. A method of manufacturing the electret sheet according to
       claim 1, wherein said solid material is heated to vaporize and then the
       porous sheet is treated with vapors of the material or
     condensation particles of said vapors in said step of
       adding the solid material to the porous sheet.

L42  ANSWER 2 OF 4  IFIPAT  COPYRIGHT 2001 IFI
AN     1757695  IFIPAT;IFIUDB;IFICDB
TI     APPARATUS FOR ELECTROSTATIC FILTRATION OF N2O4 FOR REMOVAL OF SOLID AND
       VAPOR CONTAMINANTS
INF    Breisacher, Peter, Palos Verdes Peninsula, CA
       Chang, Elfreda T, Los Angeles, CA
       Mahadevan, Parameswar, Fullerton, CA
IN     BREISACHER PETER; CHANG ELFREDA T; MAHADEVAN PARAMESWAR
PAF    The United States of America as represented by the Secretary of the Air
       Force, Washington, DC
PA     U S OF AMERICA AIR FORCE SECRETARY OF (86520)
EXNAM Bascomb, Wilbur
AG     Collier, Stanton E
       Singer, Donald J
PI     US 4657639          19870414  (CITED IN 010 LATER PATENTS)
AI     US 1985-740107      19850531
XPD    31 May 2005
FI     US 4657639          19870414
DT     UTILITY; EXPIRED
FS     CHEMICAL
OS     CA 110:41506
GOVI    The invention described herein may be manufactured and used by of for
       the Government for governmental purposes without the payment of any
       royalty thereon.
MRN    004467   MFN: 0099
```

CLMN 1
GI 1 Drawing Sheet(s), 3 Figure(s).
ECLM . . . FILTRATION OF VAPOROUS N2O4, SAID APPARATUS REMOVING SUBSTANTIAL AMOUNTS OF IRON CONTAMINANTS, SAID APPARATUS COMPRISING: A STILL FOR FORMING A **VAPOR** OF SAID N2O4, SAID STILL OPERATING AT ABOUT AMBIENT TEMPERATURES, SAID **VAPOR** FLOWING FROM SAID STILL BY A FIRST PIPE; AN **ELECTRET VAPOR** FILTER FOR RECEIVING SAID **VAPOR** FROM SAID STILL BY SAID FIRST PIPE, SAID **ELECTRET VAPOR** FILTER COMPRISING A FILTERING SECTION RECEIVING **VAPOR** FROM SAID STILL AND OUTPUTTING A FILTERED **VAPOR**, SAID FILTERING SECTION HAVING THEREIN A PLURALITY OF **ELECTRET** FILTER LAYERS SEPARATED BY WASHERS, SAID FILTER HAVING A BLOCKING FILTER LAYER POSITIONED DOWNSTREAM OF SAID PLURALITY OF **ELECTRET** FILTER LAYERS TO INCREASE THE RESIDENT TIME THAT SAID **VAPOR** INTERACTS WITH SAID FILTER, SAID FILTERED **VAPOR** FLOWING FROM SAID FILTER BY A SECOND PIPE; A FIRST FLOW CONTROL MEANS FOR RECEIVING SAID FILTERED **VAPOR** BY SAID SECOND PIPE AND OUTPUTTING SAID FILTERED **VAPOR** BY A THIRD PIPE; A MANIFOLD FOR RECEIVING SAID FILTERED **VAPOR** FROM SAID FIRST FLOW CONTROL MEANS BY SAID THIRD PIPE; A SECOND FLOW CONTROL MEANS FOR RECEIVING SAID FILTERED **VAPOR** FROM SAID MANIFOLD BY A FOURTH PIPE; A RECEIVER, SAID RECEIVER CONNECTED TO RECEIVE SAID FILTERED **VAPOR** FROM SAID SECOND FLOW CONTROL MEANS BY A FIFTH PIPE, SAID RECEIVER HAVING THEREIN A CONTAINER FOR RECEIVING SAID FILTERED **VAPOR**, SAID CONTAINER BEING AT A TEMPERATURE TO **CONDENSE** SAID FILTERED **VAPOR** INTO A FILTERED FLUID OF N2O4, AND A MEANS FOR CLEANSING SAID MANIFOLD, AND SAID FIRST AND SAID SECOND FLOW. . . .

L42 ANSWER 3 OF 4 IFIPAT COPYRIGHT 2001 IFI
AN 1350856 IFIPAT;IFIUDB;IFICDB
TI ELECTRETS; VAPOR DEPOSITED PARYLENE FILM
INF Nowlin, Thomas E, Somerset, NJ
Raschke, Curt R, Dallas, TX
IN NOWLIN THOMAS E; RASCHKE CURT R
PAF Union Carbide Corporation, New York, NY
PA UNION CARBIDE CORP (87136)
EXNAM Herbert, Jr, Thomas J
AG McCarthy, Jr, Frederick J
PI US 4291245 19810922 (CITED IN 011 LATER PATENTS)
AI US 1979-72303 19790904
XPD 4 Sep 1999
FI US 4291245 19810922
DT UTILITY; REASSIGNED
FS CHEMICAL ELECTRICAL
CHEMICAL
ELECTRICAL
CLMN 6
AB A process for preparing polymer **electrets** comprising the following steps: (a) providing a parylene film having one side affixed to a metal layer and grounding said. . . of the film with a direct current corona, the charge being of sufficient magnitude to convert the film to an **electret**; (c) providing p-xylylene monomer **vapor** in sufficient amount to coat the charged film; and (d) introducing the **vapor** from step (c) and the **electret** into a deposition zone, said zone being under vacuum and at a temperature at which the **vapor** will **condense**, whereby the **electret** is conformally coated with parylene.
ECLM 1. A PROCESS FOR PREPARING POLYMER **ELECTRETS** COMPRISING THE FOLLOWING STEPS: (A) PROVIDING A PARYLENE FILM HAVING ONE SIDE AFFIXED TO A METAL LAYER AND GROUNDING SAID. . . OF THE FILM WITH A DIRECT CURRENT CORONA, THE CHARGE BEING OF SUFFICIENT MAGNITUDE TO CONVERT THE FILM TO AN **ELECTRET**; (C) PROVIDING A P-XYLYLENE MONOMER **VAPOR** IN SUFFICIENT AMOUNT TO COAT THE CHARGED FILM; AND (D) INTRODUCING THE **VAPOR** FROM STEP (C) AND THE **ELECTRET** INTO A DEPOSITION ZONE, SAID ZONE BEING UNDER VACUUM AND AT A TEMPERATURE AT WHICH THE **VAPOR** WILL **CONDENSE**, WHEREBY THE **ELECTRET** IS CONFORMALLY COATED WITH PARYLENE.

4. AN **ELECTRET** COMPRISING, IN COMBINATION, (I) A METAL LAYER COATED WITH A FILM OF PARYLENE, SAID PARYLENE FILM HAVING A SURFACE CHARGE;. . .

L42 ANSWER 4 OF 4 IFIPAT COPYRIGHT 2001 IFI

AN 1350855 IFIPAT;IFIUDB;IFICDB
TI ELECTRETS; DIPOSE ORIENTATION OF A VAPOR DEPOSITED PARYLENE FILM
INF Beach, William F, Bridgewater, NJ
Mahoney, Dennis M, Long Valley, NJ
IN BEACH WILLIAM F; MAHONEY DENNIS M
PAF Union Carbide Corporation, New York, NY
PA UNION CARBIDE CORP (87136)
EXNAM Herbert, Jr, Thomas J
AG McCarthy, Jr, Frederick J
PI US 4291244 19810922 (CITED IN 012 LATER PATENTS)
AI US 1979-72302 19790904
XPD 4 Sep 1999
FI US 4291244 19810922
DT UTILITY; REASSIGNED
FS CHEMICAL ELECTRICAL
CHEMICAL
ELECTRICAL
CLMN 8
AB A process for preparing polymer **electrets** comprising the following steps: (a) providing two electrodes in a deposition zone, said electrodes being in a spaced relationship to. . . voltage source capable of impressing an intense electric field between the opposing surfaces; (b) providing a dipolar substituted p-xylylene monomer **vapor** in sufficient amount to coat the opposing surfaces of the electrodes; (c) activating the power source; and (d) introducing the **vapor** from step (b) into the deposition zone, said zone being under vacuum and at a temperature at which the **vapor** will **condense**, whereby the **vapor condenses** on the opposing surfaces of the electrodes, the monomer polymerizing to parylene, coating said surfaces, and forming **electrets**.
ECLM 1. A PROCESS FOR PREPARING POLYMER **ELECTRETS** COMPRISING THE FOLLOWING STEPS: (A) PROVIDING TWO ELECTRODES IN A DEPOSITION ZONE, SAID ELECTRODES BEING IN A SPACED RELATIONSHIP TO. . . EXTERNAL VOLTAGE SOURCE CAPABLE OF IMPRESSING AN INTENSE ELECTRIC FIELD BETWEEN THE OPPOSING SURFACES; (B) PROVIDING A DIPOLAR P-XYLYLENE MONOMER **VAPOR** IN SUFFICIENT AMOUNT TO COAT THE OPPOSING SURFACES OF THE ELECTRODES; (C) ACTIVATING THE POWER SOURCE TO PROVIDE SUFFICIENT POTENTIAL TO ALIGN THE DIPOLES OF THE P-XYLENE MONOMER COAT; AND (D) INTRODUCING THE **VAPOR** FROM STEP (B) INTO THE DEPOSITION ZONE, SAID ZONE BEING UNDER VACUUM AND AT A TEMPERATURE AT WHICH THE **VAPOR** WILL **CONDENSE**, WHEREBY THE **VAPOR CONDENSES** ON THE OPPOSING SURFACES OF THE ELECTRODES, THE MONOMER POLYMERIZING THE PARYLENE, COATING SAID SURFACES, AND FORMING **ELECTRETS**.
4. AN **ELECTRET** COMPRISING, IN COMBINATION, A CONDUCTIVE METAL LAYER COATED WITH A FILM OF A DIPOLAR PARYLENE, SAID PARYLENE FILM HAVING ALIGNED. . .

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L2      2923250 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (VAPOR OR VAPOUR OR LIQUID?
                OR WATER OR FLUROCARBON? OR AQUEOUS?)
L3         2917 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?ELECTRET?
L17      378623 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ?CONDEN?
L25       67512 SEA FILE=WPIDS ABB=ON  PLU=ON  L2 (S) L17
L43           5 SEA FILE=INSPEC ABB=ON  PLU=ON  L3 AND L25

=> d all 1-
YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y
```

L43 ANSWER 1 OF 5 INSPEC COPYRIGHT 2001 IEE
AN 1995:5085669 INSPEC DN A9522-7750-008; B9512-2810D-016
TI The percolation behaviour of **electret** at presence of **water condensation**.
AU Kuz'min, Yu.I. (A.F. Ioffe Physicotech. Inst., Acad. of Sci., St. Petersburg, Russia); Pshchelko, N.S.; Sokolova, I.M.; Zakrzhevskiy, V.I.
SO 8th International Symposium on Electrets. ISE 8 Proceedings (Cat. No.94CH3443-9)
Editor(s): Lewiner, J.; Morisseau, D.; Alquie, C.
New York, NY, USA: IEEE, 1994. p.124-9 of xxv+1046 pp. 4 refs.
Conference: Paris, France, 7-9 Sept 1994
Sponsor(s): IEEE Dielectr. & Electr. Insulation Soc
Price: CCCC 0 7803 1939 7/94/$4.00
ISBN: 0-7803-1940-0
DT Conference Article
TC Practical; Experimental
CY United States
LA English
AB The time stability of the surface potential of PTFE and silicon dioxide **electrets** at room temperature are similar: after an initial small decay the potential is practically constant during a time interval that decreases as humidity increases and then drastically drops. The time stability of the surface is correlated with potential relief of an **electret** sample. The presence of charge on a dielectric surface stimulates the process of **water condensation**. The behavior of **electrets** in a wet atmosphere is explained in terms of the percolation model that includes the process of nucleation and growth of conductive clusters. A theoretical consideration within a framework of this model and experimental results are presented.
CC A7750 Dielectric breakdown and space-charge effects; A7730 Dielectric polarization and depolarization effects; A7325 Surface conductivity and carrier phenomena; B2810D Dielectric breakdown and discharges; B2830C Organic insulation
CT CONDENSATION; **ELECTRETS**; ELECTRIC BREAKDOWN; HUMIDITY; ORGANIC INSULATING MATERIALS; PERCOLATION; POLYMERS; SILICON COMPOUNDS; SURFACE CONDUCTIVITY; SURFACE POTENTIAL
ST percolation behaviour; **electret**; **water condensation**; time stability; surface potential; PTFE; SiO2; room temperature; humidity increases; potential relief; dielectric surface; percolation model; 20 C; H2O
CHI SiO2 sur, O2 sur, Si sur, O sur, SiO2 bin, O2 bin, Si bin, O bin; H2O bin, H2 bin, H bin, O bin
PHP temperature 2.93E+02 K
ET O*Si; SiO2; Si cp; cp; O cp; H*O; H2O; H cp; SiO; O; Si; H

L43 ANSWER 2 OF 5 INSPEC COPYRIGHT 2001 IEE
AN 1990:3566084 INSPEC DN A90033238; B90016077
TI Low pump power performance of optoacoustic discriminator for CH3OH FIR laser.
AU Wallace, T.L.; Ventrice, C.A. (Dept. of Electr. Eng., Tennessee Technol. Univ., Cookeville, TN, USA)
SO Review of Scientific Instruments (Sept. 1989) vol.60, no.9, p.3074-5. 3 refs.

Price: CCCC 0034-6748/89/093074-02$01.30
CODEN: RSINAK ISSN: 0034-6748
DT Journal
TC Practical; Experimental
CY United States
LA English
AB The resonance enhancement of an optoacoustic signal is used to obtain a reliable discriminator in order to stabilize the output frequency of a CO2 laser. The CO2 laser is maintained on the 9P(36) emission line, the methyl alcohol **vapor** pressure within the acoustic cell is maintained at a value pg=1 Torr, and the chopper frequency is fixed at the fundamental longitudinal resonant frequency of the cylindrical resonator throughout the experiment. Utilizing a back **electret condenser** microphone to detect the optoacoustic signal, a reliable discriminator is obtained for a value of pump power as low as 10 mW.
CC A4260B Design of specific laser systems; A4255D CO/sub 2 lasers; A4255H Lasing action in other gas lasers; B4320M Laser accessories and instrumentation; B4320C Gas lasers
CT ACOUSTIC RESONATORS; CARBON COMPOUNDS; DISCRIMINATORS; GAS LASERS; LASER ACCESSORIES; LASER FREQUENCY STABILITY; OPTICAL PUMPING; ORGANIC COMPOUNDS; PHOTOACOUSTIC EFFECT
ST far IR; acoustic resonator; laser frequency stability; optoacoustic discriminator; resonance enhancement; optoacoustic signal; methyl alcohol vapor pressure; acoustic cell; chopper frequency; cylindrical resonator; **back electret condenser microphone**; 1 Torr; 10 mW; CO2
CHI CO2 bin, O2 bin, C bin, O bin
PHP pressure 1.3E+02 Pa; power 1.0E-02 W
ET C*H*O; CH3OH; C cp; cp; H cp; O cp; C*O; CO2; CO; O

L43 ANSWER 3 OF 5 INSPEC COPYRIGHT 2001 IEE
AN 1983:2120885 INSPEC DN A83102801
TI The **electret** effect in **water vapour condensates** and phase transformation in ice.
AU Chrzanowski, J.; Sujak, B. (Inst. of Experimental Phys., Univ. of Wroclaw, Wroclaw, Poland)
SO Acta Physica Polonica A (July 1983) vol.A64, no.1, p.107-13. 25 refs.
CODEN: ATPLB6 ISSN: 0587-4246
DT Journal
TC Experimental
CY Poland
LA English
AB A correlation between the known phase transformations of ice cryocondensates and the generation of surface charges during **condensation** process of **water vapour** onto a cold substrate is discussed. The main source of the observed **electret** effect seems to be a low temperature polarization process of the molecular dipoles. Local changes of the dielectric permittivity associated with the first order phase transformations may affect the experimentally observed **electret** effect.
CC A6470F Liquid-vapour transitions; A6470K Solid-solid transitions; A7720 Permittivity; A7730 Polarization and depolarization effects
CT CONDENSATION; **ELECTRETS**; ICE; PERMITTIVITY; SOLID-STATE PHASE TRANSFORMATIONS
ST **electret; water vapour condensates**; phase transformations; ice cryocondensates; surface charges; condensation; dielectric permittivity; first order phase transformations

L43 ANSWER 4 OF 5 INSPEC COPYRIGHT 2001 IEE
AN 1983:2088926 INSPEC DN A83082433
TI Electric charge generation in benzene-**water** mixtures during **condensation** at low temperatures.
AU Chrzanowski, J.; Sujak, B. (Inst. of Experimental Phys., Univ. of Wroclaw, Wroclaw, Poland)
SO Thin Solid Films (27 May 1983) vol.103, no.4, p.417-21. 13 refs.
Price: CCCC 0040-6090/83/$3.00
CODEN: THSFAP ISSN: 0040-6090
DT Journal

TC Experimental
CY Switzerland
LA English
AB It was found that, during the **condensation** of binary benzene-
water mixtures from the gas phase, electric charges are generated.
Several processes which may be responsible for this phenomenon are
discussed. It seems that one of these may be a hypothetical chemical
reaction in the **condensate** layers producing ethanol molecules.
CC A6470F Liquid-vapour transitions; A7730 Polarization and depolarization
effects
CT CONDENSATION; **ELECTRETS**; MIXTURES; ORGANIC COMPOUNDS; WATER
ST electric charge generation; **electret effect**; benzene-water
mixtures; condensation; low temperatures; chemical reaction

L43 ANSWER 5 OF 5 INSPEC COPYRIGHT 2001 IEE
AN 1982:1834004 INSPEC DN A82036528; B82020452
TI Charge storage in nonmetallized PFA film.
AU Hilczer, B.; Kulek, J.; Medycki, W. (Inst. of Molecular Phys., Acad. of
Sci., Poznan, Poland)
SO Ferroelectrics (Oct. 1981) vol.39, no.1-4, p.1244. 2 refs.
CODEN: FEROA8 ISSN: 0015-0193
Conference: 5th International Meeting on Ferroelectricity (IMF-5).
University Park, PA, USA, 17-21 Aug 1981
Sponsor(s): IUPAP; Office Naval Res.; Army Res. Office; et al
DT Conference Article; Journal
TC Practical; Experimental
CY United Kingdom
LA English
AB Summary form only given, as follows. Nonmetallized **electrets** are
advantageous for applications in **electret** electro-acoustical
transducers based on the three layer **condenser**. The authors have
modified the breakdown method and charging using a nonwetting
liquid to produce nonmetallized PFA **electrets** by
application of additional dielectric inserts. The surface density of
electrets thus produced is discussed as dependent on the thickness
and dielectric properties of the insert. Very stable (in time and
temperature) PFA **electrets** of charge density on order of 10-5
C/m2 are obtained using these methods. The effective charge stored was
found to be located near the middle of the foil after the ageing
procedure. Moreover, the way of surface charge density estimation of
nonmetallized **electrets** is proposed.
CC A7340B Static electrification; A7730 Polarization and depolarization
effects; A7755 Dielectric thin films; B2810F Piezoelectric and
ferroelectric materials
CT DIELECTRIC THIN FILMS; **ELECTRETS**; FOILS; POLYMER FILMS; STATIC
ELECTRIFICATION
ST nonmetallized perfluoroalkoxy film; charge storage; **electret
electro-acoustical transducers**; breakdown method; nonwetting liquid;
dielectric inserts; PFA; foil; ageing; surface charge density

```
L1          1058 SEA FILE=WPIX ABB=ON  PLU=ON  3M/PA
L2             9 SEA FILE=WPIX ABB=ON  PLU=ON  ?ELECTRET? AND L1
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=> d max 1-
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YOU HAVE REQUESTED DATA FROM 9 ANSWERS - CONTINUE? Y/(N):y
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L2   ANSWER 1 OF 9 WPIX   COPYRIGHT 2001   DERWENT INFORMATION LTD
AN   2001-161074 [17]   WPIX
DNN N2001-117444   DNC C2001-048186
TI   Filter device for use as a high efficiency medical breathing system filter comprises fluid chamber having pleated filtration medium comprising non-woven web of **electret** charged fibers of thermoplastic resin.
DC   A96 J01 P34
IN   DE JONG, G; KRAPP, J T
PA   (MINN) **3M INNOVATIVE PROPERTIES CO**
CYC 25
PI   EP 1068889   A1 20010117 (200117)* EN   13p   B01D039-16
        R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
           RO SE SI
ADT EP 1068889 A1 EP 1999-202349 19990716
PRAI EP 1999-202349   19990716
IC   ICM B01D039-16
     ICS A61M016-10
AB   EP   1068889 A UPAB: 20010328
NOVELTY - A filter device comprises a housing having a fluid chamber connecting to two fluid ports. The fluid chamber has a volume of not more than 140 ml and comprises a pleated filtration medium for capturing bacteria and viral material. The medium comprises a non-woven web of **electret** charged fibers, of a nonconductive thermoplastic resin, having a resistivity of at least 1014 ohm-cm. The web has an effective diameter (EFD) of not more than 5 mu m.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method of filtering breathable air comprising passing breathable air to be inspired and expired by a patient through the above filter device.

USE - As a high efficiency medical breathing system filter and for connection to the respiratory tract of a patient.

ADVANTAGE - The filter device has an efficiency of at least 99.97% for NaCl particles of 0.3 micro m at a flow challenge of 30 l/minute. The filter device shows similar or improved efficiency in removing microorganism from the air at a lower pressure drop as compared to a glass fiber based filter. It can be provided in various shapes including a substantially cylindrical shape and the dead volume of the filter device can be reduced. The filtration medium allows minimizing the volume of the filter chamber and has a hydrostatic pressure.

Dwg.0/2

TECH EP 1068889 A1 UPTX: 20010328
TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Filter device: The filter device further comprises a heat and moisture exchange filtration medium, which is a substrate impregnated with a hygroscopic material. The fluid chamber comprises a cylindrical and a central portion. The fluid ports has a diameter less than the cross-section of the central portion and is connected to a conduit that is in fluid communication with the trachea of a patient and the other fluid port is connected to a further conduit connecting to a breathing apparatus. The volume occupied by filter medium is less than 60 ml.

TECHNOLOGY FOCUS - POLYMERS - Preferred Components: The thermoplastic resin is a polyolefin. The non-woven filter web has a basis weight (BW) of less than 60 (preferably 10-40) g/m2 and a penetration (PEN) of less than 0.03%. The ratio of BW/EFD-PEN is more than 200. The web has an EFD of 1-4

microns.

ABEX EP 1068889 A1 UPTX: 20010328

EXAMPLE - A polypropylene resin composition was prepared by melt compounding CHIMASSORB 944 FL (RTM; a hindered amine) (0.8 wt.%) into TPX DX 820 (poly(4-methyl-1-pentene)) (1.2 wt.%) in a single screw extruder in a 40:60 ratio and the resultant blend was extruded into a fiber. The fiber was ground to a powder and was added to the polypropylene pellet feed (98 wt.%) during preparation of the based blown microfiber (BMF) webs. A BMF web was prepared using a melt blowing process. The flow tube connecting the extruder to the die was maintained at 340 degrees C and the primary air was maintained at 400 degrees C and 690 kPa with a 0.102 cm gap width, to produce a uniform web. The above obtained polypropylene resin composition was delivered from the die at a rate of 0.16 g/hole/minute and the resulting web collected on a perforated rotating belt collector. Increasing the rotational speed of the collector rather than reducing the resin delivery rate obtained the lower basis weight BMF webs. The average effective fiber diameter (EFD) for the webs produced was 2.7 microns. The webs produced were charged using a hydro-charging process as described in US5496507 using a water pressure of 550 kPa. The obtained filter web was provided on both sides with a cover web of 15 g/m2. This construction was further provided on both sides with a Vexar (RTM; netting) to yield a filter medium. The filtration medium was produced by inserting the filter medium into a cylindrical fluid chamber and sealing the filter medium to the fluid chamber wall. A polyurethane resin (sealant) was dropped into the filter device while rotating that device, forcing the polyurethane resin outwardly to the interface of the filter medium and the fluid chamber wall. The filter had a filter diameter of 70 mm, a pleat height of 15 mm, a distance between adjacent pleats of 2-4 mm, and the basis weight of the web was 20 g/m2 and the volume of the fluid chamber of 99 ml. A comparative filter device was PALL BB 100 (RTM; glass fiber based filter). The inventive filter device/the comparative filter device showed the following results: sodium chloride filter efficiency = 99.997/99,990%; bacterial removal efficiency = 99.9996560/99.9999800%, virus removal efficiency = 99.9996770/99.9986000, hydrostatic pressure = 100/93 cm of water and pressure drop = 6.88/11.60 mm of water.

FS CPI GMPI

FA AB

MC CPI: A12-V03B; J01-H

PLE UPA 20010328

[1.1] 018; G0033-R G0022 D01 D02 D51 D53; H0317; S9999 S1183 S1161 S1070; S9999 S1070-R; S9999 S1514 S1456; S9999 S1387; S9999 S1241 S1229 S1070; H0000; H0011-R; P1150

[1.2] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; H0317; S9999 S1183 S1161 S1070; S9999 S1070-R; S9999 S1514 S1456; S9999 S1387; S9999 S1241 S1229 S1070; P1150; P1343

[1.3] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86; H0317; S9999 S1183 S1161 S1070; S9999 S1070-R; S9999 S1514 S1456; S9999 S1387; S9999 S1241 S1229 S1070; H0000; P1150

[1.4] 018; B9999 B3270 B3190; N9999 N5970-R; N9999 N6155; N9999 N6428; B9999 B5254 B5243 B4740; N9999 N7090 N7034 N7023; B9999 B5447 B5414 B5403 B5276; N9999 N7294; B9999 B3292-R B3190; K9745-R; N9999 N6020 N6008

[1.5] 018; ND01; Q9999 Q8026 Q7987; Q9999 Q7567; N9999 N7147 N7034 N7023; K9574 K9483; K9676-R; K9416

[1.6] 018; A999 A544 A486; K9869 K9847 K9790

[2.1] 018; P1592-R F77 D01

[2.2] 018; Q9999 Q9007; K9518 K9483

[2.3] 018; ND01; Q9999 Q8026 Q7987; Q9999 Q7567; N9999 N7147 N7034 N7023; K9574 K9483; K9676-R; K9416

[3.1] 018; D01 D11 D10 D23 D22 D33 D76 D41 D45 D50 D95 F19 F10 F07; A999 A782; A999 A544 A486; K9869 K9847 K9790; P1105-R D01 F07

L2 ANSWER 2 OF 9 WPIX

AN 2001-158937 [16] WPIX

DNC C2001-047108

TI Alkylated fluorochemical oligomeric compounds useful in films, sheets, fibers and oily mist resistant **electret** filter comprise

fluorochemical oligomeric portion linked to aliphatic backbone through linking group.

DC A60 A85 E19 F01 J01

IN DAMS, R J; JARIWALA, C P; JONES, M E; KLUN, T P

PA (MINN) **3M INNOVATIVE PROPERTIES CO**

CYC 87

PI WO 2000068189 A1 20001116 (200116)* EN 51p C07C323-52
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
AU 9958001 A 20001121 (200117) C07C323-52

ADT WO 2000068189 A1 WO 1999-US20063 19990901; AU 9958001 A AU 1999-58001 19990901

FDT AU 9958001 A Based on WO 200068189

PRAI US 1999-309836 19990511

IC ICM C07C323-52
ICS C08K005-375; C08K005-435; D06M013-252

AB WO 200068189 A UPAB: 20010323
NOVELTY - An alkylated fluorochemical oligomeric compound (1) comprises a fluorochemical oligomeric portion (a); an aliphatic moiety and a linking group.

DETAILED DESCRIPTION - An alkylated fluorochemical oligomeric compound (1) comprises: a fluorochemical oligomeric portion (a); an aliphatic moiety and a linking group. (a) has several fluoroaliphatic group each linked to a carbon atom of the aliphatic backbone through an organic linker and each group has a fully fluorinated terminal group.

INDEPENDENT CLAIMS are also included for:

(A) a synthetic organic polymer composition comprising (1) and a synthetic organic polymer;

(B) shaped articles such as films, sheets and fibers comprising a melt-processable thermoplastic polymer and (1); and

(C) an oily mist resistant **electret** filter medium comprising a polypropylene **electret** fibers and (1).

USE - In synthetic organic polymer composition, shaped article such as films, sheets, fibers and as oily mist resistant **electret** filter medium (claimed). The films and sheets may be used in electrostatic element such as microphones, headphones, speakers, in dust particle control, high voltage electrostatic generator, electrostatic recorders, etc. As tropical treatments for fibrous substrates such as textiles and fabrics and as polymer melt additives to provide desirable oil, water and stain repellency to shaped articles. In preparation of non-woven fabrics used in medical gowns, drapes and masks. The films are useful moisture and/or grease-resistance packaging, release liners and as multilayer constructions. The filter medium is useful as an air filter element of a respirator such as a face mask or for such purposes as heating, ventilation and air-conditioning.

ADVANTAGE - The compound imparts oil, water and stain repellency to the surface of the shaped articles. In medical gowns, drapes and masks the compound provides repellency to bodily fluids.

Dwg.0/0

TECH WO 200068189 A1UPTX: 20010323
TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Compound: (1) is compound of formula ((A)m-L)nR or (A)m(L-R)n.
m = 1 or 2;
n = 1 - 10;
L = linking group (preferably covalent bond, straight, branched or cyclic alkylene, arylene, aralkylene, oxy, oxo, hydro, thio, sulfonyl, sulfoxy, amino, imino, sulfonamido, carboxamido, carbonylolxy, urethanylene and/or ureylene);
R = organic aliphatic moiety (preferably 1-75C alkyl);
A = group of formula (I);
a = integer such that A is oligomeric and comprises many Rf groups (preferably 3 - 8);
R1 = H, halogen or 1-4C alkyl (straight or branched);

R2 = H, 1-4C alkyl (straight or branched);
Rf = fluoroaliphatic group (preferably 4-14C perfluorinated alkyl);
Q = covalent bond or an organic linking group (preferably -SO2NR'1(CH2)kO(O)C-, -CONR'1(CH2)kO(O)C-, -(CH2)kO(O)C-, -CH2CH(OR'2)CH2O(O)C-, -(CH2)kC(O)O-, -(CH2)kSC(O)-, -(CH2)kO(CH2)kO(O)C-, -(CH2)kS(CH2)kO(O)C-, -(CH2)kSO2(CH2)kO(O)C-, -(CH2)kS(CH2)kO(O)C-, -(CH2)kSO2NR'1(CH2)kO(O)C-, -(CH2)kSO2-, -SO2NR'1(CH2)kO-, -SO2NR'1(CH2)k-, - (CH2)kO(CH2)kC(O)O-, -(CH2)kSO2NR'1(CH2)kC(O)O-, -(CH2)kSO2(CH2)kC(O)O-, -CONR'1(CH2)kC(O)O-, -(CH2)kS(CH2)kC(O)O-, -CH2CH(OR'2)CH2C(O)O-, -SO2NR'1(CH2)kC(O)O-, and -(CH2)kC-);
k = 0 - 20;
R'1 = H, phenyl or 1-4C alkyl;
R'2 = 1-20C alkyl.
Preferred Composition: (1) is from 0.5 - 5 wt.% in the polymer composition and comprises 10 - 10000 ppm fluorine in the shape article.
Preferred Filter Medium: The fibers in the **electret** filler medium are annealed and have a diameter of 2 - 30 micrometers.

ABEX WO 200068189 A1UPTX: 20010323
EXAMPLE - A mixture of C8F17SO2N(CH3)C2F4OC(O)CH=CH2 (MeFOSEA)4 (50 g), UNILIN 700(TM) (polyethylene 700 alcohol having about 50C atoms) (13.8 g), methanesulfonic acid (0.5 ml) and toluene (100 ml) was refluxed for 15 hours. Ca(OH)2 (10 g) was added to the hot mixture and solution was filtered. Toluene was removed and remaining solid of (MeFOSEA)4-S-CH2CH2COO-UNILIN 700 (a) (an alkylated fluorochemical oligomeric compound) was dried. A molded casting was made using 3M scotch-Weld 2158 B/A(TM) (thermoset epoxy resin) (4.9 g) and (a) (0.20 g) and a comparative casting was prepared without using (a). The water repellency and oil repellency tests were run on the surface of the cured casting. The rating values corresponded to the highest number test liquid for which a drop, when placed on the surface of the film would not spread. The results of test/comparative for water repellency were 9/1.5 and for oil repellency were 7/0. Desirable value f or the oil repellency test was at least 3 while for the water repellency test, the value was at least 6.

KW [1] 0032-57901 CL NEW; 0032-57902 CL NEW
FS CPI
FA AB; GI; DCN
MC CPI: A04-E10; A04-G03E; A12-E01; A12-G03; A12-H04; A12-S05K; A12-W11A; E10-A08; E10-A10A; E10-A10D; E10-A12C1; E10-B01B; E10-B02; E10-B03; E10-B04; E10-D03; E10-E04; E10-F02; E10-G02A1; E10-G02B1; E10-G02E; E10-H01A; E10-H01C; F01-D05; F01-D10; F03-C02; F03-C02A; F04-E04; F04-E05; J01-G03; J01-H

PLE UPA 20010323
[1.1] 018; G0022-R D01 D51 D53 D11 D10 D13-R D18-R D60 D63 D69 D86 D87 D88 D89 D90 D91 D92 D93 D94 D95 F00 F15 F26-R F34 F35-R F41-R F61 F63 F64 F70-R F78 F77 O- 6A S- F- 7A 7A-R F04; H0317; S9999 S1387; S9999 S1285-R; S9999 S1581; S9999 S1070-R; A999 A420-R; A999 A782; A999 A431 A420; A999 A442 A420; A999 A453 A420
[1.2] 018; ND04; Q9999 Q7567; B9999 B3509 B3485 B3372; B9999 B5254 B5243 B4740
[2.1] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; S9999 S1070-R; P1150; P1343
[2.2] 018; A999 A420-R; A999 A431 A420; A999 A442 A420; A999 A453 A420

CMC UPB 20010323
M3 *01* C316 G010 G019 G100 H581 H582 H598 H599 H6 H600 H601 H608 H609 H681 H682 H683 H684 H685 H689 J011 J012 J013 J014 J271 J272 J290 J341 J342 J371 J372 K351 K352 K353 K399 K442 K499 K810 K899 L410 L462 L463 L471 L472 L499 L640 L650 L660 L699 M210 M211 M212 M213 M214 M215 M216 M220 M221 M222 M223 M224 M225 M226 M231 M232 M233 M280 M311 M312 M313 M314 M315 M316 M320 M321 M322 M323 M331 M332 M333 M334 M340 M342 M343 M344 M349 M362 M381 M383 M391 M392 M414 M416 M510 M520 M531 M532 M540 M620 M710 M904 M905 Q120 Q322 Q323 Q431 R042 R043
DCN: 0032-57901-N
M3 *02* H6 H600 H601 H608 H609 H681 H682 H683 H684 H685 H689 M280 M315 M316 M321 M331 M333 M334 M344 M362 M391 M416 M620 M710 M904 M905 Q120 Q322 Q323 Q431 R042 R043
DCN: 0032-57902-N

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L2   ANSWER 3 OF 9  WPIX   COPYRIGHT 2001   DERWENT INFORMATION LTD
AN   2001-091962 [10]   WPIX
DNC  C2001-027231
TI   Self-supporting pleated air filter production, comprises forming pleats in
     filter media, bonding planar reinforcing strip to pleat tips, positioning
     reinforcing member in pleats, and cutting to size.
DC   J01
IN   PITZEN, J F; SUNDET, D C
PA   (MINN) 3M INNOVATIVE PROPERTIES CO
CYC  89
PI   WO 2001005486 A1 20010125 (200110)* EN   29p    B01D046-52
        RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL
            OA PT SD SE SL SZ TZ UG ZW
         W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES
            FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS
            LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL
            TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
ADT  WO 2001005486 A1 WO 1999-US26357 19991108
PRAI US 1999-354416   19990715
IC   ICM  B01D046-52
AB   WO 200105486 A UPAB: 20010220
     NOVELTY - Production of a self-supporting, pleated air filter using a
     fully automated process comprises forming pleats in a filter media,
     bonding a planar reinforcing strip oriented in the direction of pleating
     to the pleat tips on the front face of the filter media, positioning a
     reinforcing member in the pleats along the rear face of the pleated
     filter, and cutting the pleated filter to size.
          DETAILED DESCRIPTION - Production of a self-supporting, pleated air
     filter using a fully automated process comprises:
          (i) forming pleats in a filter media extending along a front face and
     a rear face, the pleats comprising pleat tips and sloping side surfaces
     perpendicular to the direction of pleating;
          (ii) bonding at least one planar, first reinforcing strip oriented in
     a direction of pleating to the pleat tips on the front face of the filter
     media to form a pleated filter capable of machine handling;
          (iii) positioning at least one reinforcing member in the pleats along
     the rear face of the pleated filter; and
          (iv) cutting the pleated filter to size.
          INDEPENDENT CLAIMS are also included for the following:
          (I) two methods for the production of self-supporting, pleated
     filters;
          (II) a further method for the production of a self-supporting,
     pleated air filter; and
          (III) three self-supporting, pleated filters.
          USE - Production of a self-supporting, pleated filter with
     reinforcing structures for air filtration, using e.g. conventional filter
     media or electret filter media.
          ADVANTAGE - The pleated filter has reinforcing structures that resist
     pleat deformation. The filter has good flow characteristics and exhibits
     sufficient stability so that the pleats do not collapse or deform when
     subjected to operating pressure.
     Dwg.0/9
FS   CPI
FA   AB
MC   CPI: J01-G03

L2   ANSWER 4 OF 9  WPIX   COPYRIGHT 2001   DERWENT INFORMATION LTD
AN   2000-638239 [61]   WPIX
DNN  N2000-473408       DNC C2000-191957
TI   Vacuum cleaner filter bag comprises at least two sidewalls joined by
     seams, with first sidewall comprising heat sealable film, and second
     sidewall comprising synthetic fiber filter.
DC   A88 J01 P28 X27
IN   ZHANG, Z
PA   (MINN) 3M INNOVATIVE PROPERTIES CO
CYC  22
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PI WO 2000056421 A1 20000928 (200061)* EN 32p B01D039-14
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: CA JP KR
US 6156086 A 20001205 (200066) B01D046-02
ADT WO 2000056421 A1 WO 2000-US5979 20000306; US 6156086 A US 1999-273521 19990322
PRAI US 1999-273521 19990322
IC ICM B01D039-14; B01D046-02
ICS A47L009-14; B01D039-16
AB WO 200056421 A UPAB: 20001128
NOVELTY - A vacuum cleaner filter bag comprises at least two sidewalls joined by thermal seams. First sidewall(s) comprises a film laminate (11) of a heat sealable film layer (13) and a film support layer (12), and second sidewall comprises a filter laminate (21) of synthetic fiber filter layer (23) and synthetic support layer (22).

USE - For vacuum cleaner bag (claimed).

ADVANTAGE - The filter bag has excellent bond strength and functions as high efficient microfiber filter media with HEPA level performance, and is economical.

DESCRIPTION OF DRAWING(S) - The figure shows top elevational view of vacuum filter bag.
Film laminate 11
Film layer 12
Film support layer 13
Filter laminate 21
Filter support layer 22
Filter layer 23
Diffusion layer 24
Dwg.4/4
TECH WO 200056421 A1UPTX: 20001128
TECHNOLOGY FOCUS - TEXTILES AND PAPER - Preferred Filter Layer: The filter layer comprises a meltblown non-woven filter layer or a fibrillated fiber non-woven filter layer. The filter layer has an air permeability of 2-400 m3/minutes/m2, a basis weight of 10-200 g/m2 and is formed at least in part of heat sealable thermoplastic fiber layers. The filter laminate additionally contains inner diffusion layer(s) (24) formed of a non-woven fibrous web of thermoplastic fibers having an air permeability of 100-1000 m3/minute/m2. The basis weight of diffusion layer fibrous web is 10-100 g/m2. The support layer of filter laminate comprises a fibrous non-woven web having an air permeability of 50-500 m3/minute/m2 and a basis weight of 10-100 g/m2. The laminate layers are bonded along peripheral seams and the filter layer comprises an outer surface of heat sealable thermoplastic. The filter layer is a web of **electret** charged fibers of non-conductive thermoplastic resin having a resistivity greater than 1014 ohm-cm. The non-woven filter web has a basis weight (BW) of less than 100 g/m2, preferably less than 60 g/m2, an effective fiber diameter (EFD) of less than 5 microns and penetration (PEN) of less than 0.03%. The ratio (I) of BW/(EFDxPEN) is greater than 100, preferably greater than 1000. The filter web has a pressure drop of less than 10 mm water and a charge level of at least 5 muC/m2. Preferred Additives: The charged fibers of the non-woven filter web have a charge enhancing additive of 0.2-10 weight% of charge fibers. The charge enhancing additive comprises a hindered amine and thermally stable organic compound or oligomer containing perfluorinated moiety and/or thermally stable organic triazine compounds or oligomers containing at least one nitrogen atom in addition to that of triazine group. Preferred Film Layer: The film layer has a basis weight of 30-200 g/m2 and the film support layer is a non-woven web having a basis weight of 10-100 g/m2. The film layer and the support layer are substantially unbonded except at the seams. The film layer comprises a polypropylene polymer or copolymer film.
ABEX WO 200056421 A1UPTX: 20001128
EXAMPLE - A laminate consisting of piece of spun bond fabric, a rectangular piece of polypropylene film and collar bearing rectangular piece of Media C, positioned with a collar on the outer surface of filter media was prepared. The perimeter of the laminate assembly was ultrasonically welded together. The obtained filter bag was evaluated for filtration performance by vacuum cleaner particle emission test. The

filter bag showed particle emission of 822 particles/cm3. The bag was tested for bag loading capacity and was found to have higher dust holding capacity of 78 g.

FS CPI EPI GMPI
FA AB; GI
MC CPI: A12-D04; A12-H04; J01-H
EPI: X27-D04A
PLE UPA 20001128
[1.1] 018; H0317; S9999 S1070-R; S9999 S1183 S1161 S1070; S9999 S1161-R S1070; S9999 S1230 S1229 S1070; S9999 S1241 S1229 S1070
[1.2] 018; B9999 B3269 B3190; B9999 B3270 B3190; N9999 N6166; B9999 B5254 B5243 B4740; K9938
[1.3] 018; ND01; K9416; K9949; N9999 N7192 N7023; Q9999 Q7818-R; Q9999 Q7567; Q9999 Q7749 Q7681; Q9999 Q8753; K9676-R; K9698 K9676; N9999 N5721-R; B9999 B4875 B4853 B4740; B9999 B5301 B5298 B5276; Q9999 Q8413 Q8399 Q8366; K9701 K9676
[1.4] 018; D01 F07-R; D01 D23 D22 D76 D45 F19; A999 A135; A999 A771
[2.1] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; H0011-R; S9999 S1285-R; P1150; P1343
[2.2] 018; K9518 K9483; N9999 N6166; K9938
[2.3] 018; ND01; K9416; K9949; N9999 N7192 N7023; Q9999 Q7818-R; Q9999 Q7567; Q9999 Q7749 Q7681; Q9999 Q8753; K9676-R; K9698 K9676; N9999 N5721-R; B9999 B4875 B4853 B4740; B9999 B5301 B5298 B5276; Q9999 Q8413 Q8399 Q8366; K9701 K9676
[3.1] 018; F- 7A; A999 A782; A999 A135; H0237-R
[3.2] 018; D01 D23 D22 D76 D45 F19 N- 5A; A999 A782; A999 A135; H0237-R
[4.1] 018; P0000
[4.2] 018; Q9999 Q6666 Q6644; K9518 K9483
[4.3] 018; ND01; K9416; K9949; N9999 N7192 N7023; Q9999 Q7818-R; Q9999 Q7567; Q9999 Q7749 Q7681; Q9999 Q8753; K9676-R; K9698 K9676; N9999 N5721-R; B9999 B4875 B4853 B4740; B9999 B5301 B5298 B5276; Q9999 Q8413 Q8399 Q8366; K9701 K9676

L2 ANSWER 5 OF 9 WPIX
AN 2000-548314 [50] WPIX
DNC C2000-163593
TI Air delivery device for use in automotive heating, ventilation, or air conditioning system, has an air delivery fan with rotating air moving elements that establish a higher pressure zone at the air outlet relative to the air inlet.
DC F04 J01
IN HARMS, M; LIRA, R; TANG, Y
PA (MINN) **3M INNOVATIVE PROPERTIES CO**
CYC 86
PI US 6102988 A 20000815 (200050)* 26p B01D033-00
WO 2001010537 A1 20010215 (200111)# EN B01D046-26
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
ADT US 6102988 A US 1998-126181 19980730; WO 2001010537 A1 WO 1999-US17614 19990804
PRAI US 1998-126181 19980730; WO 1999-US17614 19990804
IC ICM B01D033-00; B01D046-26
ICS B01D045-14; B60H003-06; F04D029-30; F04D029-38; F04D029-70
AB US 6102988 A UPAB: 20001010
NOVELTY - An air delivery device has an air delivery fan (1) having at least two rotating air moving elements (4) that intersect the flow of air between the air inlet (2) and the air outlet of a housing and establish a higher pressure zone at the air outlet.
DETAILED DESCRIPTION - An air delivery device has an air delivery fan having at least two rotating air moving elements located between the air inlet and outlet of a housing. The air moving elements intersect the flow of air and establish a higher pressure zone at the air outlet relative to

the inlet. The fan has filter(s) with upstream and downstream filter faces (12, 11). The filter defines primary flow channel(s) and rotates along the same axis of rotation (6) as the air moving elements. The upstream filter face moves into a portion of the airflow (7) through the fan such that this face impacts a portion of the moving airflow in a flow channel, thus permitting the air to flow through the filter into the airflow of another flow channel. The filter further defines airflow passages or inlets allowing unrestricted airflow to the primary flow channels and out to the air outlet. The air filters comprise an **electret** charges filter media (3) having an average Frazier Permeability of at least 2000 m3/h/m2. An INDEPENDENT CLAIM is also included for a method of filtering particles from a moving airstream.

USE - Used in automotive heating, ventilation, or air conditioning system.

ADVANTAGE - The device shows little or no pressure drop over its lifetime, no matter how long it is in use.

DESCRIPTION OF DRAWING(S) - The diagram is a perspective view of a filter.

Air delivery fan 1
Air inlet 2
Filter media 3
Air moving elements 4
Axis of rotation 6
Airflow 7
Downstream and upstream faces 11, 12
Dwg.1/10

TECH US 6102988 A UPTX: 20001010
TECHNOLOGY FOCUS - TEXTILES AND PAPER - Preferred Component: The filter comprises a nonwoven fibrous filter web (preferably melt blown microfibers or split fibrillated charged fibers) formed at least in part of **electret** charged fibers. The filter web includes sorbent particulates or fibers, or additional functional layers (preferably particle or sorptive filtration layers). Secondary flow channels are formed by pleating of the filter media. Preferred Property: The filter media has an average Frazier Permeability of 2000-8000 (preferably 3000-6000) m3/h/m2.

TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Component: The air moving elements comprise at least two blades extending radially outward from the axis of rotation to form an annular fan.

FS CPI
FA AB; GI
MC CPI: F01-E02; F02-C01; F04-E05; J01-G03

L2 ANSWER 6 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 2000-270987 [23] WPIX
DNC C2000-082587
TI Filtration medium for e.g. ventilation and air conditioning systems, respiratory filters, vacuum cleaners, or room air cleaners has non-woven filter web of **electret** charged fibers of non-conductive thermoplastic resin.
DC A88 J01
IN ANGADJIVAND, S; KINDERMAN, R; WU, T; ABOLHASSAN, S; WU, T T
PA (MINN) MINNESOTA MINING & MFG CO; (MINN) **3M INNOVATIVE PROPERTIES CO**
CYC 84
PI WO 2000013765 A1 20000316 (200023)* EN 43p B01D039-04
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
AU 9932933 A 20000327 (200032) B01D039-04
US 6123752 A 20000926 (200051) B03C003-28
ADT WO 2000013765 A1 WO 1999-US3188 19990216; AU 9932933 A AU 1999-32933 19990216; US 6123752 A US 1998-146627 19980903

FDT AU 9932933 A Based on WO 200013765
PRAI US 1998-146627 19980903
IC ICM B01D039-04; B03C003-28
ICS B01D039-16
AB WO 200013765 A UPAB: 20000516

NOVELTY - The high efficiency filtration medium comprises a non-woven filter web of **electret** charged fibers of a non-conductive thermoplastic resin having a resistivity of greater than 1014 ohm-cm.

DETAILED DESCRIPTION - The high efficiency filtration medium comprises a non-woven filter web of **electret** charged fibers of a non-conductive thermoplastic resin having a resistivity of greater than 1014 ohm-cm. The nonwoven filter web has a basis weight (BW) of less than 60 g/m2, an effective fiber diameter (EFD) of less than 5 mu m and a penetration (PEN) of less than 0.03%. The ratio (I) of BW/(EFD x PEN) is greater than 200.

USE - The high efficiency filtration medium is used in environments that require very clean conditions like surgical operating rooms or clean rooms. It is also used in heating, ventilation and air conditioning systems, respiratory filters, vacuum cleaners and room air cleaners.

ADVANTAGE - The medium provides a high efficiency particulate air (HEPA) level performance filter medium at ever increasing efficiencies at lower pressure drops, lower basis weights and lower thickness ranges in form which can be easily pleated and joined to other functional layers.

Dwg.0/3

TECH WO 200013765 A1UPTX: 20000516

TECHNOLOGY FOCUS - TEXTILES AND PAPER - Preferred Web: The non-woven filter web comprises a web of melt blown fibers and the charged fibers of non-woven filter web contain a charge enhancing additive. The filtration medium also comprises a support web.

Preferred Composition: The charged fibers of non-woven filter web comprises 0.2-10% enhancing additive.

Preferred Condition: The filter web has a thickness of less than 0.15 cm, preferably 0.10 cm, a pressure drop of less than 10 mm water (H2O), preferably 10 mm HO, and a charge level of at least 5 mum2, preferably at least 6 microC/m2. The filter web percent penetration is less than 0.01% and its web basis weight is less than 50 g/m2. The EFD is less than 4.5 mum, preferably less than 4 mum, and the filter web ratio is greater than 400, preferably 1000. The penetration ratio of the **electret** discharged medium to the charged medium is greater than 10000.

TECHNOLOGY FOCUS - POLYMERS - Preferred Component: The filter web fibers are formed from a non-conductive polyolefin resin or blend, or charged fibers of polypropylene, poly(4-methyl-1-pentene) or blends. The charge enhancing additive comprises a thermally stable organic compounds or oligomer containing at least one perfluorinated moiety and/or thermally stable organic triazine compounds, or oligomers containing at least one nitrogen atom in addition to triazine group.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Component: The charge enhancing additive comprises hindered amine.

FS CPI
FA AB
MC CPI: A04-E10; A05-J02; A08-M09A; A09-A03; A12-H04; A12-S05G; J01-G03; J01-H
PLE UPA 20000516

[1.1] 018; G0033-R G0022 D01 D02 D51 D53; H0000; H0011-R; H0317; S9999 S1183 S1161 S1070; P1150
[1.2] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; S9999 S1183 S1161 S1070; H0317; P1150; P1343
[1.3] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86; H0000; S9999 S1183 S1161 S1070; H0317; P1150
[1.4] 018; B9999 B3270 B3190; B9999 B5254 B5243 B4740; N9999 N6020 N6008; B9999 B5243-R B4740; K9745-R
[1.5] 018; ND01; Q9999 Q7567
[1.6] 018; D01 D22-R D45 F19; A999 A135; B9999 B4682 B4568; A999 A771
[1.7] 018; D01 F07-R; A999 A135; A999 A771; B9999 B4682 B4568
[2.1] 018; P0500 F- 7A; A999 A135; A999 A782

[2.2] 018; N- 5A; P1536-R D01 D23 D22 D45 F19; A999 A135; A999 A782
[2.3] 018; B9999 B4682 B4568

L2 ANSWER 7 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 2000-160765 [14] WPIX
DNN N2000-119939 DNC C2000-050220
TI Fluorinated **electret** for use in aerosol filters, air filters, face masks, respirators and as electrostatic elements in microphones, headphones and recorders.
DC A18 A23 A88 J01 L03 P41 V06 X25
IN ANGADJIVAND, S A; JONES, M E; LYONS, C S; REDMOND, D B; SOLOMON, J L
PA (MINN) **3M INNOVATIVE PROPERTIES CO**
CYC 85
PI WO 2000001737 A1 20000113 (200014)* EN 32p C08F008-24
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
AU 9947002 A 20000124 (200027) C08F008-24
ADT WO 2000001737 A1 WO 1999-US13917 19990621; AU 9947002 A AU 1999-47002 19990621
FDT AU 9947002 A Based on WO 200001737
PRAI US 1998-109497 19980702
IC ICM C08F008-24
ICS B03C003-28
AB WO 200001737 A UPAB: 20000323
NOVELTY - An **electret** with a surface modified polymeric article having surface fluorination produced by fluorinating a polymeric article.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (I) method of making an **electret** by fluorinating a polymeric article and charging it, (II) filter comprising the **electret**, and (III) respirator comprising the filter.

USE - In aerosol filters, air filters, face masks, respirators and as electrostatic elements in electroacoustic devices like microphones, headphones and electrostatic recorders.

ADVANTAGE - The **electret** exhibits a higher oily mist resistance when compared to the prior art.
Dwg.0/3
TECH WO 200001737 A1UPTX: 20000320
TECHNOLOGY FOCUS - POLYMERS - Preferred **Electret**: The non woven melt-blown micro fibrous web polymer has 50 atomic % preferably about 45 atomic % fluorine as detected by electron spectroscopy for chemical analysis. The CF3:CF2 ratio of the polymer is 0.25 preferably 0.45, especially greater than about 0.9 according to the Method for Determining CF3:CF2. It has a Quality Factor of 0.25 preferably 0.5, especially about 1/mm H2O. It is polycarbonate, polyester, halogenated polyvinyl, polystyrene and/or polyolefin preferably polypropylene and/or poly-(4-methyl-1-pentene) especially polypropylene. The fiber diameter is 1-50 preferably 3-30, especially 7-15 mum. The micro fibers are made from resin having resistivity less than 1014 ohm-cm. The web weighs 10-100 g/m2 with a thickness of 0.25-20 mm.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Method: The polymer is fluorinated in a controlled atmosphere free of oxygen. It is contacted with gaseous fluorine species of (hydro) fluorocarbons, fluorinated sulfur, fluorinated nitrogen and/or elemental fluorine preferably elemental fluorine. This is in presence of alternating current (AC), corona discharge at atmospheric pressure. The charging is by impinging jets of water or water droplets stream onto the fluorinated polymer under pressure. The charging is preferably by a direct current (DC) corona discharge and the **electret** is then dried.
ABEX WO 200001737 A1UPTX: 20000320
SPECIFIC COMPOUNDS - The fluorinating species is C5F12, C2F6, CF4, hexafluoropropylene, SF6 and/or NF3.

EXAMPLE - A polyester staple fiber web having basis weight 200 g/m2 was fluorinated in 1 vol.% C2F6 in helium atmosphere at AC corona energy of 34 J/cm2. The CF3:CF2 ratio was 0.99. This was then hydrocharged by deionized water spray at 90 psi. The web was then vacuum slotted to remove excess water and dried. The quality factor of the web was 1.03.

FS CPI EPI GMPI
FA AB
MC CPI: A10-E04A; A12-H04; J01-K02; L03-B03
EPI: V06-B02; V06-C; V06-E03; X25-F03B
PLE UPA 20000323
[1.1] 018; P0862 P0839 F41 F44 D01 D63; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070
[1.2] 018; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; P0839-R F41 D01 D63; S9999 S1092 S1070
[1.3] 018; G0022-R D01 D51 D53 D69 7A-R; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000
[1.4] 018; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; P1741; P1752
[1.5] 018; G0033-R G0022 D01 D02 D51 D53; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; H0011-R; P1150
[1.6] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; P1150; P1343
[1.7] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86; S9999 S1183 S1161 S1070; M9999 M2391; M9999 M2255 M2222; L9999 L2391; L9999 L2255 L2222; S9999 S1241 S1229 S1070; H0000; P1150
[1.8] 018; ND01; ND07; Q9999 Q7567; N9999 N7227 N7023; B9999 B5232 B4740; B9999 B5492 B5403 B5276; K9427; B9999 B3270 B3190; B9999 B5254 B5243 B4740; B9999 B5243-R B4740; Q9999 Q8026 Q7987; Q9999 Q6611-R; Q9999 Q7501
[1.9] 018; D09 F- 7A; R00976 G0022 D01 D12 D10 D51 D53 D59 D69 D83 F- 7A; H0226
[1.10] 018; D01 D11 D10 D50 D69 D85 F- 7A; H0226
[1.11] 018; D01 D11 D10 D50 D82 D69 F- 7A; H0226
[1.12] 018; D01 D11 D10 D50 D69 D81 F- 7A; H0226
[1.13] 018; D00 S- 6A F- 7A; H0226
[1.14] 018; D00 N- 5A F- 7A; H0226

L2 ANSWER 8 OF 9 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1999-371145 [31] WPIX
DNN N1999-276704 DNC C1999-109611
TI Multilayer molded respirator containing active sorbent particle with fibrous layer held in retainers.
DC A32 A83 A96 F04 F07 K02 P21 P35 P73
IN BARRETT, L W; HARPER, R C; SPRINGETT, J E
PA (MINN) MINNESOTA MINING & MFG CO; (MINN) **3M INNOVATIVE PROPERTIES CO**
CYC 82
PI WO 9928542 A1 19990610 (199931)* EN 50p D04H001-00
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
AU 9871178 A 19990616 (199945) D04H001-00
US 6102039 A 20000815 (200041) A62B007-10
EP 1036229 A1 20000920 (200047) EN D04H001-00
R: DE ES FR GB IT NL
BR 9815117 A 20001010 (200055) D04H001-00

ADT WO 9928542 A1 WO 1998-US7529 19980413; AU 9871178 A AU 1998-71178 19980413; US 6102039 A US 1997-982119 19971201; EP 1036229 A1 EP 1998-918213 19980413, WO 1998-US7529 19980413; BR 9815117 A BR 1998-15117 19980413, WO 1998-US7529 19980413

FDT AU 9871178 A Based on WO 9928542; EP 1036229 A1 Based on WO 9928542; BR 9815117 A Based on WO 9928542

PRAI US 1997-982119 19971201

IC ICM A62B007-10; D04H001-00
ICS A41D013-00; A62B023-02; B01D039-16; B32B005-26; D04H013-00

AB WO 9928542 A UPAB: 20000516

NOVELTY - Respirator (10) contains active sorbent particle containing fibrous layer. The fibrous layer is held between tacky retaining layers.

DETAILED DESCRIPTION - Respirator (10) includes air permeable layer (24) containing sorbent particles and sandwiched between air permeable particle retaining layers (22, 26). The particle containing layer is stretch into a cup like shape with some of its fibres sufficiently tacky after forming by themselves into a particle free web and cooled so that the web will adhere to itself.

An INDEPENDENT CLAIM is also included for producing a respirator by:

(1) forming a particle containing layer from thermoplastic fibres and particles, the fibres being sufficient tacky after being formed into the web and cooled, the web will adhere to itself;

(2) sandwiching the particle containing layer between particle retaining layers; and

(3) forming the layers into a cup like shape, stretching the particle containing layer without it tearing.

Preferred Features: One or more of the layers incorporates an **electret** charge. The particle containing layer, before shaping has at least 25 (50)% elongation to break in both machine and cross direction. The respirator when exposed to a flow rate of 20 liters per minute atmosphere containing 60 ppm n-hexane at 50% relative humidity and 35 deg. C, at least 60 (90) minutes will elapse before 10 ppm hexane can be detected in the respirator. The particles comprise carbon or alumina.

USE - Used as a disposable cub shaped multi layer fibrous respirator, for use in hazardous environments in all industries

ADVANTAGE - Eliminates the need for preforms and associated machinery and process steps required in prior art respirator manufacture.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section through the respirator.

respirator 10

air permeable particle retaining layer 22, 26

air permeable particle containing layer 24

Dwg.2/6

TECH WO 9928542 A1 UPTX: 20001114

TECHNOLOGY FOCUS - POLYMERS - Preferred Layers: The particle containing layer comprises 10 micrometers diameter fibres of stretchable block copolymers, an acrylate, a polyolefin or a polyurethane, and is pillowed before moulding. The other layers comprise a polyalphaolefin, metallocene catalysed polyolefin or a polyurethane.

FS CPI GMPI

FA AB; GI

MC CPI: A12-C02; F04-C06; K02-B

PLE UPA 19990806

[1.1] 018; H0317; H0044-R H0011; S9999 S1070-R; S9999 S1183 S1161 S1070

[1.2] 018; G0260-R G0022 D01 D12 D10 D26 D51 D53; H0000; H0011-R; S9999 S1070-R; S9999 S1183 S1161 S1070; P0088

[1.3] 018; P1592-R F77 D01; S9999 S1070-R; S9999 S1183 S1161 S1070

[1.4] 018; ND01; Q9999 Q7567; ND07; N9999 N7192 N7023; Q9999 Q7818-R; N9999 N5914-R; N9999 N5856; B9999 B5152-R B4740; Q9999 Q7294; Q9999 Q7090 Q7056; K9676-R; K9483-R

[1.5] 018; B9999 B5301 B5298 B5276; N9999 N5812-R; B9999 B5254 B5243 B4740; B9999 B3883 B3838 B3747

[2.1] 018; G0033-R G0022 D01 D02 D51 D53; H0000; H0011-R; S9999 S1070-R; S9999 S1183 S1161 S1070; P1150

[2.2] 018; ND01; Q9999 Q7567; ND07; N9999 N7192 N7023; Q9999 Q7818-R; N9999 N5914-R; N9999 N5856; B9999 B5152-R B4740; Q9999 Q7294;

Q9999 Q7090 Q7056; K9676-R; K9483-R
[2.3] 018; B9999 B5301 B5298 B5276; N9999 N5812-R; B9999 B5254 B5243 B4740; B9999 B3883 B3838 B3747
[2.4] 018; D01 D13-R D51-R D62 D61 D68 Gm; C999 C033 C000; C999 C293

L2 ANSWER 9 OF 9 WPIX
AN 1999-254959 [21] WPIX
DNC C1999-074620
TI **Electret** filter webs comprising a polymer and a performance-enhancing additive.
DC A17 A23 A32 A35 A85 A88 E13 F01 F02 F04 F06 F08 J01
IN JONES, M E; MEI, B Z; ROUSSEAU, A D
PA (MINN) MINNESOTA MINING & MFG CO; (MINN) **3M INNOVATIVE PROPERTIES CO**
CYC 81
PI WO 9916533 A1 19990408 (199921)* EN 59p B01D039-08
RW: AT BE CH DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
AU 9861348 A 19990423 (199935) B01D039-08
US 6068799 A 20000530 (200033) B29C035-16
EP 1019174 A1 20000719 (200036) EN B01D039-08
R: DE ES FR GB IT NL
BR 9812593 A 20000801 (200043) B01D039-08
CZ 2000001180 A3 20000913 (200054) B01D039-08
CN 1272803 A 20001108 (200114) B01D039-08
ADT WO 9916533 A1 WO 1998-US1457 19980202; AU 9861348 A AU 1998-61348 19980202; US 6068799 A US 1997-941864 19971001; EP 1019174 A1 EP 1998-906004 19980202, WO 1998-US1457 19980202; BR 9812593 A BR 1998-12593 19980202, WO 1998-US1457 19980202; CZ 2000001180 A3 WO 1998-US1457 19980202, CZ 2000-1180 19980202; CN 1272803 A CN 1998-809737 19980202
FDT AU 9861348 A Based on WO 9916533; EP 1019174 A1 Based on WO 9916533; BR 9812593 A Based on WO 9916533; CZ 2000001180 A3 Based on WO 9916533
PRAI US 1997-941864 19971001
IC ICM B01D039-08; B29C035-16
ICS B01D039-16; D01F001-10
AB WO 9916533 A UPAB: 19990603
NOVELTY - A method of making an **electret** article comprises:
(a) forming a heated, molten blend of a polymer and a performance-enhancing additive;
(b) shaping the melt;
(c) quenching the shaped material; and
(d) annealing and charging the quenched material to form an **electret**.

USE - For making an **electret** comprising a nonwoven web containing melt-blown fibers (claimed) used as a filter for removing particles from a gas, especially aerosols from air, e.g. in respirators such as face masks, home and industrial air conditioners, furnaces, air cleaners, vacuum cleaners, medical and air line filters and air cleaning systems in vehicles and electronic equipment, e.g. computers and disk drives.

ADVANTAGE - The additives provide **electret** filters with superior oily mist loading performance, charge stability in the presence of liquid aerosols, decreased penetration of aerosols or particulates and a small pressure drop across the filter.

DESCRIPTION OF DRAWING(S) - The figure shows DOP loading performance (minimum challenge, mg) versus unannealed crystallinity index for a polypropylene nonwoven filter web.
Dwg.2/17
TECH WO 9916533 A1 UPTX: 19990603
TECHNOLOGY FOCUS - POLYMERS - Preferred Method: The melt is shaped by extrusion through a die to form an extrudate, which is quenched as it emerges from the die. The melt may be extruded under melt-blowing conditions. The product is quenched fibers, which may be collected as a

nonwoven web. The blend comprises 95-99.5 wt.% polypropylene and 0.5-5 wt.% of a fluorochemical additive. Before annealing, quenched fibers have a crystallinity index of less than 0.3. Annealing is performed at 130-150degreesC and the blend is extruded at 0.5-1.4 pound/hour/inch of die. The web is charged by corona treatment and annealing is performed after charging. The **electret** has a thermally stimulated discharge current (TSDC) spectrum that shows a peak of width at half peak height of less than 25degreesC, as measured by TSDC test procedure 3.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Additive: The additive is a fluorochemical. Preferred are (I)-(III), i.e. additives A, B and C described in U.S. Pat. No. 5,411,576: The fluorochemical has a melting point above polypropylene and below the extrusion temperature.

ABEX WO 9916533 A1 UPTX: 19990603

SPECIFIC COMPOUNDS - The polymer is polypropylene (preferred), poly(4-methyl-1-pentene, linear low density polyethylene, polystyrene, polycarbonate, polyester or a mixture.

EXAMPLE - A nonwoven filter web was prepared by extruding Escorene 3055G (RTM: polypropylene) containing 1.1 wt.% (I) at 50 pounds/hour under melt-blowing conditions with a melt temperature of 288degreesC and a 48 inch drilled orifice die. The extrudate was quenched using a spray bar with 13 flat fan nozzles spaced 4 inches apart and mounted 0.75 inch from the die face and 2.5 inches below the molten polymer streams. Each nozzle was rotated 10degrees from the cross web direction so that the fans of water did not interfere with each other and the water pressure was set at the minimum level that would maintain a uniform spray. The web was annealed in an oven at 150degreesC with a dwell time of 4.5 minutes then corona treated using a high-voltage electrical field with a corona current of 2.6 x 10-3 mA / cm of corona source length and a residence time of 15 seconds. The web had a basis weight of 71 g / m2, a thickness of 1.3 mm and a pressure drop of 6.6 mm water at a face velocity of 13.8 cm / second. Weighed pairs of discs cut from the web, stacked on on top of the other, were mounted in a holder and a 6.0 inch circle was exposed to a dioctyl phthalate (DOP) aerosol at a face velocity of 7.77 cm / second. The tests were continued until there was a clear trend for DOP penetration or until an exposure to 200 mg of DOP. The pair of discs was then weighed again and a minimum at challenge value was calculated, i.e. the total mass of DOP incident on and through the sample at the point where the DOP percent penetration reached its minimum value (higher value = better DOP loading performance). The crystallinity index of the polypropylene was determined for samples cut from 6 positions across the web after annealing and for samples cut from positions 1, 4 and 6 before annealing. The figure shows a plot of the minimum challenge values (mg) versus unannealed crystallinity index for positions 1, 4 and 6, demonstrating that the lower the crystallinity index of the web before annealing, the greater the minimum at challenge value. The crystallinity index of the web in the 6 positions after annealing was 0.57, 0.53, 0.52, 0.59, 0.51 and 0.47 respectively and the minimum challenge values were 149, 83, 78, 83, 150 and 340 respectively, showing that there is no correlation between the crystallinity index of the annealed web and DOP loading performance.

FS CPI

FA AB; GI

MC CPI: A11-B02; A11-C04E; A12-E; F01-C07A; F02-C02; F03-E; F04-E; J01-H

PLE UPA 19990609

[1.1] 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88; H0000; S9999 S1070-R; S9999 S1183 S1161 S1070; S9999 S1387; P1150 ; P1741 ; P1161 ; P1343 ; P1752

[1.2] 018; R15485 G0044 G0033 G0022 D01 D02 D12 D10 D53 D51 D58 D86; H0000; S9999 S1070-R; S9999 S1387; S9999 S1183 S1161 S1070; P1150

[1.3] 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; H0011-R; P1252; S9999 S1387; S9999 S1070-R; P1150

[1.4] 018; P0839-R F41 D01 D63; S9999 S1070-R; S9999 S1183 S1161 S1070; S9999 S1387

[1.5] 018; P0862 P0839 F41 F44 D01 D63; S9999 S1387; S9999 S1070-R;

S9999 S1183 S1161 S1070

[1.6] 018; ND01; ND07; N9999 N5823 N5812; N9999 N5970-R; N9999 N6188 N6177; N9999 N7294; Q9999 Q7567; N9999 N6202 N6177; N9999 N6020 N6008; N9999 N6962-R; B9999 B4773-R B4740; K9745-R; Q9999 Q7090 Q7056; Q9999 Q7749 Q7681; Q9999 Q8026 Q7987; Q9999 Q9289 Q9212; Q9999 Q9449 Q8173; Q9999 Q8855-R

[1.7] 018; D01 D11 D10 D19 D18 D23 D22 D32 D33 D75 D76 D41 D42 D50 D95 F64 D69 F77 F- 7A; A999 A748